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Computer Weekly

Thursday, April 21, 1983

PT7 cuts costs
FERRANTI Computer Systems

Big German user suspends Fujitsu

by Kevin Cahill
THE biggest German user of Fujitsu's machines has been forced to suspend their use until summer. Germany's largest bureau, Davey, despite declaring the Fujitsu OS-IV operating system more reliable than the IBM MVS, will not bring its Fujitsu mainframes back online until June.

According to Davey executives the company encountered problems with data stream control when it introduced the first of the new IBM 3380 discs into its huge installation last September.

Davey is one of the largest independent real time bureaux in the world, running a central mainframe configuration of two IBM 3081K machines and two Fujitsu 380 microprocessors alongside each other.

The Fujitsu machines, which will soon be joined by Europe's first dual processor, Facom 382, are supplied by Siemens and the installation normally runs the Fujitsu machines under OS/IV in parallel with the two IBM machines running MVS.

The four machines access a data pool of 170 gigabytes which is continuously online and which is based on 48 IBM 3380s as well as 60 Siemens 3550 discs.

Because of the size of the data pool and the need for real time access 24 hours a day by 15,000 of Davey's 25,000 terminals, Davey gradually developed a dual vendor policy which the company felt was essential if it was to be secure from any shortcomings which might develop as a result of relying on one vendor.

The second vendor chosen by Davey's chief executive Heinz Seiberger, was Fujitsu, in the disguise of Siemens. Seiberger insisted that full dual vendor benefits would only accrue if the second vendor had its own operating system.

In the event Fujitsu was able to show true independence as well as compatibility.

Seiberger last week declared himself puzzled by IBM's reaction. And Davey has hit the limelight with IBM for what appears to be an innocuous remark by Davey's technical director, Stephan Unterberg.

Quoted in a German journal, Unterberg had ribbed an IBM expert who visited him for not being familiar with the advantages of emitter coupled logic semiconductor technology which all IBM's rivals use, and transistor to transistor logic which IBM uses.

The day after the article appeared Seiberger received an angry letter from IBM's managing director, and the newspaper received threats of legal action.

Last week neither Seiberger nor Unterberg could explain IBM's reaction other than in terms of IBM sensitivity to comments by an IBM customer, which is both Germany's largest bureau and the country's most advanced systems software development company.



SEIBERGER... Puzzled by IBM's reaction.

Logica buys out Australians

LOGICA has bought out the Australian operation of its erstwhile backer, Planning Research Corporation. The deal means the formation of Australia's third largest systems house, according to Logica chairman Philip Hughes.

And the takeover of PRC's four bases, at Sydney, Brisbane, Melbourne and Canberra gives Logica the geographical spread necessary to service effectively the Australian market, says Hughes.

IO TECHNOLOGY was still looking for a buyer last week, after calling in the receiver, Phil Ramsbottom, of accountants Pat, Marwick and Mitchell, who took charge of the UK micro maker's business, said 70 sales memoranda had been issued to parties interested in taking it over. He hoped to sell it as a going concern. The firm went public last year, raising £500,000 to launch its loan model, but was thwarted by production problems.



Alvey response is due

by Kevin Cahill
THE government's response to the Alvey Report is due today in the form of a ministerial statement in the Commons.

It is expected to take the form of a partial adoption of the less expensive elements of Alvey's proposed £350 million of expenditure on information technology over the next five years, including a much smaller directorate than Alvey recommended.

The Alvey Committee was set up by the Department of Industry in response to the challenge of the Japanese Fifth Generation Computing Project.

One recommendation was that the government should fund up to 50% of specific projects despite the government's dislike of state funding.

The second recommendation is that the Alvey funded projects, which will be targeted on Software Engineering, VLSI, Knowledge Based Engineering, and the man machine interface, should be controlled by a large directorate. Again, this is contrary to Mrs Thatcher's avowed policy of reducing, and not increasing, the number of civil servants.

Software brings the micro dream closer

by George Black
THE promise microcomputers hold for large data processing departments and their end-users is a step closer to fruition with a rash of announcements by leading software firms.

Cullinet, Informatics, Management Science America (MSA) and McCormack and Dodge have all laid the groundwork for linking personal computers and mainframes.

The initial emphasis is on tying IBM mainframes to IBM's personal computer, which has already gained 40% of the US market. IBM will do much of the connecting work, making the micro act as a terminal.

But the more intractable problem lies in developing software to allow the PC its own intelligence when joined to a mainframe. With that breakthrough the burden of systems waiting to be written might be shifted to end-users.

Cullinet revealed its plans last week to launch a package by the year-end. Its IDMS/R will overcome the problem of having to choose between a relational database benefiting users and a network approach maximising on power, says international operations director John Karcane.

With it is bundled the new Cullinet Information Database, which it is proposed to interface with Apple's Lisa machine - and a set of business applications. Delivery here and in the US will be in the fourth quarter, assures UK managing director Vic Morris. "We've made such a fuss about it we can't afford to slip up," he said.

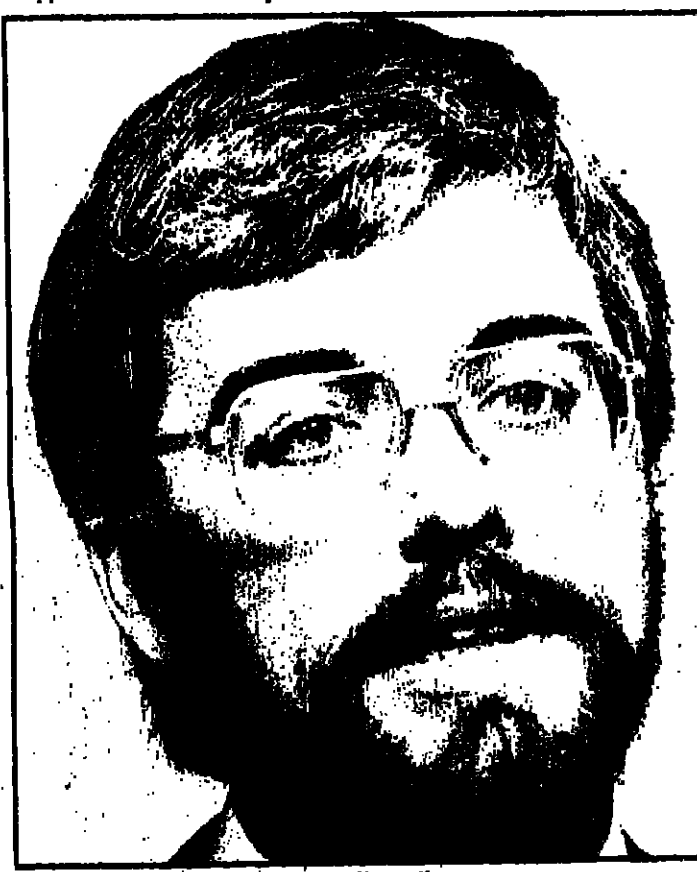
Informatics is combining with Visicorp to promote what it insists will be the first general-purpose link of the machines. Target for release is also the fourth quarter. European marketing director Doug Yarrow argued that they had not included uploading in the system because of a "very big customer reluctance to allow this for control and security reasons". A 50-micro group would cost \$45,000.

The pace was set by MSA in December, when it stated its intention to use a hardware device to bridge the gap. MSA, with its micro subsidiary Peachtree, hopes to put its "Executive Peachpak" on the market in July or August.

Available in the US since January, it has been demonstrated recently to customers in Maidenhead. Consultant Andrew Bailey said there had been a delay in finding a suitable British firm to make and support the black box protocol converter. It was still "a little premature" to talk about prices.

McCormack and Dodge has scheduled the introduction to the US of its software offering as a "springtime event", and hopes to bring it to this country "some time this year", according to Charles Hogan, European regional manager. A 50-micro configuration could cost as much as \$150,000, he said, but M&D's approach was "more sophisticated than its rivals", allowing uploading of data as well as downloading.

Cincom is investigating ways of putting its fourth generation language Mantis on to the PC. The project which has top priority at its Cincinnati laboratories should be finished this year. It will be followed by a project to put the database system Total on the PC, says UK general manager Terry Booth. Applied Data Research is poised to make an announcement in this area in the next two months. UK director Nick Pollard said that downloading and uploading of files was not the best answer - they wanted to create "a dynamic interaction" between the machines.



MORRIS... "We can't afford to slip up."

Micro Focus shares go on USM

MICRO FOCUS, the award-winning British micro Cobol firm, is to offer 20 per cent of its shares on the United Securities Market in the first half of May. And it is more likely they will be offered for sale to the public by advertisement than placed in advance, a spokesman said.

The issue, which will be carried out by stockbrokers Laurence Prust with advice from merchant bank Singer and Friedlander, is expected to raise £3.5 million, at least half of which will be ploughed back into the business. Total value of all the firm's shares on the opening day is estimated at between £15 million and £17 million.

HP double

THE first of Hewlett-Packard's 14in Winchester discs comes off the production line today (Thursday) - the same day that the first sod is cut for its new factory near Bristol. The 65.6 Mbyte 7912 discs are being built in temporary premises until the new plant is completed early next year. The new factory at Wallcourt Farm will concentrate on the design and manufacture of mass storage devices, and will form the sole European source for HP storage products.

Purchasing policy

A RENEWED call for a clear government procurement policy on electronics has come from the National Economic Development Office. In an update of a report published a year ago the electronics committee acknowledges positive government moves on many of its points but re-affirms that a public procurement policy is vital to an industry in which employment is falling and imports are fast overtaking exports.

Hitachi three to launch new range

by Kevin Cahill
THREE of the world's largest computer vendors, including two top European companies will shortly introduce Hitachi's new mainframe products to the marketplace.

The machines, announced recently in Tokyo, and intended to complete Hitachi's line-up against IBM's top end machines in the 3081 range, will be launched in Europe by Olivetti shortly, and were included in BASF's line-up at Hannover Fair.

National Advanced Systems, which is US-based and the largest seller of Hitachi systems, will introduce the machines either later this month or early next month according to Bob Howells, NAS European vice-president.

Howells said the only reason for the delay in the NAS introduction was that it did not release systems until it could ship and support them.

IBM's basic offering in the 308X series is a liquid-cooled classic (dual) processor called the 3081, with letters K, D and G and a MIPS rating of 4 to 6.

The Hitachi M280 range now offers an improved 280H to compete directly with the 3081K. The M280H has expanded buffer

memory to 256K, compared with the conventional 64K buffer and an arithmetic operation which is rated at 1.3 times the 280D (about 5 to 7 MIPS).

The M280D is a completely revamped machine, although pitched against the slower IBM 3081G and with a maximum main memory of 64 Mbytes.

The IBM uniprocessor version of the 3081, designated the 3083, introduced to plug a gap through which customers might want to do competitive swap-outs, is matched by Hitachi with a completely revamped M260K which has maximum main memory of 32 Mbytes and a speed of around 2 MIPS.

To compete with the slower 3083 B and E processors Hitachi has introduced an improved 260H and developed a new version of the series called the 260D.

The main features of the new additions are that all are field upgradable, which means in practice that it takes an engineer just a few hours to swap boards in the processor.

All the new machines use 550 gate logic arrays and incorporate memory chips of 64K capacity with delay times of .45 nanoseconds.

Hitachi has not bothered to offer



HOWELLS... "NAS does not release systems until it can ship and support them."

Work starts on cabling standards

by John Kavanagh
THE government has started work on communications standards for the proposed cabling of the UK - a month before Home Secretary William Whitelaw is due to present the White Paper to the Commons.

The Department of Industry has contracted the UK communications firm Network Technology to lead a study on the standards needed to link cable television services, local area networks and public data networks. British Telecom, ICL and Thorn EMI are also involved.

This group will look at the possibility of linking cable television networks run by Thorn EMI in Swindon and British Telecom in Milton Keynes. British Telecom's X25 packet switching network and high-speed Megastream and Kilo-stream digital services will be considered for this link.

But the study is also going much further. The group will look at the cable television networks to include data communications, using the broadband local area network which Network Technology sells in the UK for the US manufacturer Sytek. And it will study standards involved in linking ICL baseband local area networks into the cable system.

The result of this latest industry-led study could be a pilot project linking domestic and business users in Swindon and Milton Keynes.

"The pilot project could become a testing ground for things which are only on paper at present," said Dick Willson, who is leading the project from Network Technology.

Willson added that the local area network market had moved beyond last year's arguments over whether broadband or baseband systems were better. "We're no

longer arguing over what a local area network is but talking about real applications," he said.

"We sold 12 systems last year. What was significant was the fact that they all went to end users rather than research laboratories, so they'll evolve to live systems."

Jermyn sold

LEX Service, the exclusive UK dealer for Volvo cars, has bought Jermyn Holdings, an electronic components distributor, for £15.3 million. Jermyn is in the top five UK distributors with a profit of £1.17 million in 1982. It is the sixth largest company in the field in West Germany and operates in France. Lex already owns Schweizer Electronics a leading US group, and Hawke, a small UK distributor. It is intended that electronics distribution should account for 26% of Lex's turnover of £700 million this year.

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It's Oscar time again for the British

by George Black
THE British are coming again to claim their share of Oscars at the industry gala night at the Savoy Hotel, London, tomorrow night (Friday).

But flag-waving at the ICP Million Dollar Awards ceremony is likely to be subdued, for some of the home firms have passed into American hands. And many British successes rested on US products.

The all-Brit Micro Focus will be picking up a \$5 million award for its Level 11 Cobol, as well as million-in-one year awards for salesmen Stewart Lang and Chris Wilson.

And Manchester-based Northern Software Consultants' Nor-sal2 sales ledger package made the million-in-one category, with its Nor-ma general ledger and management reporting system passing the one-million mark.

The ghost of recently-crashed Altergo will be there to take the honours for its Friendly Query System, which also achieved the million-in-one.

In the banking sector BIS Software is rewarded for its Midas product. And two firms which used to be British in that sector, Hoskyns and Arbat, continue to triumph under US ownership. Systime, a chunk of which went into American hands with Control Data, is to take three awards.

Package Programs Ltd, the London accounting package company, is to get awards for sales of the US Cyborg payroll system and of Software International's general ledger and financial reporting and accounts payable and receivable systems.

F International's Janet Lennon is one of the few women to gain recognition for her accomplishments as the group's western regional manager.

Filetab Support Services' rapid programming language is one of those to pass the million dollar mark - as is Lex-11, from Ace Microsystems with which Filetab has, ironically, been locked in legal dispute.

Bristol-based RTZ Computer Services passed the \$50 million mark with its US-developed general ledger system G/L Plus.

Company News... 9
Software File... 10
Micro News... 11
Profile, Platform... 12
Leaders, Letters... 13
Workplace... 14
People... 15
Comps Europe... 17/20
Coding... 21
Future Trends... 22
Artificial Intelligence... 23
Products... 24/25
Crossword Answer... 54
Top Jobs... 29
Middle East Jobs... 46
Jobs... 28/55



Leighton's Euro call on Compec eve... 17



Psychology and computers... 23



BBC star slams the micro... 8

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LINE NOISE

IT looks as if ICL's 500-strong Applications Systems Division could be due for the axe only 18 months after its rise from the ashes of Datacall, with rumours of consultants being made redundant as their projects come to an end. ASD was once the apple of managing director Robb Willmot's eye, but one City analyst says that it is no longer seen by Willmot as the spearhead he once thought it was, and that ICL will rely more heavily on outside systems houses. "Willmot's ideas aren't as fixed as they used to be," he adds. Sources within ICL believe that a reorganisation and change of direction is very much on the cards for both development and marketing areas, but an ICL spokesman denied any plans to scrap ASD.

FUJITSU continues to demonstrate the desk-top laser printer introduced by ICL at the Slob show in Paris last September. The machine is still, according to Fujitsu executives, on offer to OEM dealers, and so far the company has signed no deal with ICL. Part of the reason, according to the Fujitsu staff, is because the machine, which is a combined laser printer, copier and facsimile machine, has no controller board. Without the board the device is simply an expensive office copier, unusable for any of the communications applications for which it was designed. Finding a company capable and willing to create a controller is proving more difficult than either Fujitsu as supplier, or ICL as vendor, had first thought.

Willson added that the local area network market had moved beyond last year's arguments over whether broadband or baseband systems were better. "We're no

Printed in Great Britain by the publishers Business Press International Ltd, Queen's Road, St. Leonards, Surrey, TN38 5AB, for the publishers, Logica Ltd, 84 Newmarket Street, London W1A 6JL. Registered at the G.P.O. as a newspaper.



Lords turn a blind eye to June poll rumours

by our Parliamentary Correspondent

THE Lords last week gave a second reading to the Telecommunications Bill knowing that their effort would be wasted if Margaret Thatcher goes for a June election.

It is unlikely that either the Telecommunications Bill or the Data Protection Bill could be passed in time for a June election, since that would require the co-operation of the Labour opposition. Neither Bill is likely to be granted a speedy passage by Labour.

So if Thatcher does go for June, both Bills will fall and have to be reintroduced in the new Parliament if the Tories win. Labour has pledged to scrap the Bills.

Meanwhile in the Commons, Kenneth Baker drew the attention of Trade Minister Peter Rees to an anomaly which allows fully or partly assembled microcomputers to be imported at only a six per cent duty, while the individual components are subject to 17% import duty.

Rees replied that the government was actively considering with the various industrial interests concerned how best to proceed.

Europe ready to unveil IT policy

by John Riley

EUROPE'S attempt to outthink the Japanese and American fifth generation research programmes is likely to be adopted as official policy by the European Commission next week.

But Euro MPs do not want the programme to suffer the long delays that have plagued the existing European data processing programmes.

The proposal for the £2.5 billion, 10-year programme, the European Strategic Programme on Research in Information Technology (Esprit), has passed through its initial stages, and full details including the budget, will be published within the next month or so.

Some 16 pilot projects, in advance of the main Esprit programme have already been approved and tendered for, and the contracts are shortly to be announced.

Prominent among critics of the programme is the Belgian Euro MP Fernand Hermans, who said this week: "It has taken many years to achieve very little at great cost. I mainly blame the Council of Ministers for the delays and changes to the programme so far, and I have drawn attention to the situation in the European Parliament, in the hope that the Esprit project will be run more efficiently."

As if to underline Hermans' point, the first contract as part of

the European Microelectronics Programme, which has been held up for a year, was announced this week. The Science and Engineering Research Council, in collaboration with General Electric, Philips, University College Swansea and Trinity College Dublin, has won a £2 million contract to develop methods of simulating and testing the behaviour of semiconductors.

Other contract announcements are expected imminently.

The European Parliament recently boosted the four-year European data processing budget from £8.4 million to £30.75 million. Of the £24.6 million increase, some £17.89 million will go towards study relating to information technology, microcomputers, terminals and intelligent devices, and £6.71 million for developments in electronic components. The cash will be formally approved this December.

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BATESON... Ericsson now "well ahead" of its competitors.

Ericsson pushes in with office system

by Nuala Moran

AS PART of its push into the UK, Ericsson Information Systems has launched Series 2000, an office automation system. It will replace Series 16 which was introduced by Datasab, now a part of Ericsson.

The Series 2000 is compatible with the Series 16, of which 200 are

installed in the UK. The Series 2000 features two lines of systems, System 2100 for banking automation, and System 2500 for distributed data processing in business applications. The business packages have been updated from the series 16 and office software such as electronic mail, information retrieval and text processing have been added. Ericsson has already received six orders for the Series 2000.

Both of the systems can be expanded from one to 100 workstations and over two Mbytes primary storage. This does not involve any major hardware changes and uses the same applications program and operating system.

The systems can also function as autonomous minicomputer networks or as part of a large-scale integrated network.

Mike Bateson, Ericsson's UK marketing director said: "Series 2000 puts Ericsson well ahead of its competitors, and we are going out aggressively to corner the UK market."

Ericsson has adopted a deliberate strategy to get into the market for information systems over the past three years. To this end it took over the data processing company Datasab and the office automation company Pacit.

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ICL may walk out of Mitel deal

by Kevin Cahill

A RUPTURE in one of ICL's main strategic deals now looks certain as PABX supplier Mitel laments under a series of tight deadlines imposed by ICL. The deadlines relate to the completion of work to make Mitel's DRX 3000 PABX function as well as British Telecom acceptance criteria.

According to ICL, which admits to losing five or six orders for the exchange because of software problems encountered by Mitel, the two companies have now agreed a tight schedule designed to achieve complete working of the machine by the end of this year.

The Mitel PABX is the centrepiece of ICL's ambitious networking strategy and Mitel recently admitted that the earliest date for BT certification would also be the end of 1983.

ICL claims to have 30 orders for the machine from customers who will wait until then for their deliveries.

Brokers in the City, many with clients into ICL stock for millions of pounds, query whether ICL's optimism about customer patience is justified.

The company will not say what action it intends to take if Mitel fails to meet the deadlines they have jointly agreed, but chairman Sir Christopher Laidlaw is quoted as telling brokers that the Mitel deal is one that ICL could walk away from.

Laidlaw could not be contacted to confirm his statement, but at least three other suppliers, led by Plessey, which was rejected in favour of Mitel when ICL was looking for a PABX, is hovering in the wings to offer ICL an up-and-running PABX.

Plessey's IDX exchange, which is both British Telecom certified and in delivery, is believed a front runner if Mitel fails to deliver. Close behind are French supplier CIT Alcatel, German supplier Siemens and Swedish telecoms giant LM Ericsson.

Mitel is believed to have offered ICL the option of physically stacking its 200 series superswitches until the DRX 2000 is ready, but ICL is thought to be unattracted to this just as the company is less than enthusiastic about the idea that ICL is actually writing the software for the DRX 2000.

Mainstream brokers in the City, who are loudly critical of ICL's recent poor public performance, privately say that the company is well on target for the £10 to £14 million they expect for the first half of 1982/83.

For the past six to nine months ICL has adopted a low profile compared with the almost weekly Press and financial briefings given during the worst days of the crisis in 1981.

The low profile has done ICL little good, allowing most of the company's activities to go unrecorded, while difficulties such as Mitel have become more prominent than would otherwise be the case.



LAIDLAW... Ready to pull out of Mitel deal?

Buyer for Altergo Software

by Andrew Thourès

TWO more chunks of the Altergo empire have been snapped up. Altergo Software was bought by Thomson-EMI subsidiary Software Sciences on Monday for £750,000, and 60% of shares in Altergo Ireland have gone to Cord Investments for an undisclosed sum.

Software Sciences takes over the Avonbury premises of Altergo Software, and the marketing rights to its products, including top-selling TP monitor Shadow II.

Software Sciences' managing director Mike Shone said he had offered all 35 staff jobs with the new company, to be known as Software Sciences, Altergo Products Division.

"They've been disillusioned recently," said Shone, "but at least they were all here today. I hope they will all stay, because we want to expand the operation."

The deal with Cord Investments for a majority shareholding in Altergo Ireland includes the £1.25 million contract with the United Arab Shipping Company, sold off separately by the receiver.

CEPT branded as price-fixing cartel

by Boris Sedacca

A CAMPAIGN to expose the Conference of European Posts and Telecommunications (CEPT) as a price-fixing cartel has been launched by the European Computing Services Association (ECSA).

The European Commission, however, has told ECSA that it is powerless to do anything as the CEPT is not a legal entity.

"We are convinced that CEPT is against the spirit of EEC competition law," said Doug Eyleyons, director-general of the Computing Services Association in the UK.

Eyleyons argued that the monopoly position of the national PTTs presented a major obstacle to be overcome by the multi-national computing services companies. Although telecommunications have benefited from advances in micro-electronics and satellite communications technology, prices had not dropped accordingly. As a result distributed computing was at a disadvantage against standalone computers.

Eyleyons told Computer Weekly: "The problem is tracking anyone down at CEPT. They only meet officially every four years or so, although its working parties meet more often."

And at the meeting he added: "The high costs imposed by the PTTs are a form of tariff barrier to international telecommunications and there are many other instances of the restrictions of free flow of data and information across countries' borders."

"This is leading to a form of protectionism which will impede the rate of progress of computing in Europe. The software product companies have not yet been affected because it is very difficult to impose a realistic customs duty on a single master copy of the software that is being introduced in a country."

IBM quits peace talks in trade secrets case

by Howard Karten and John Kavanagh

IBM has taken a new hard line in its trade secrets case against Hitachi, and National Advanced Systems. It has pulled out of talks aimed at settling the case and taken the two companies back to court.

The San Francisco court had given the companies 60 days to settle the case out of court but when the period ended IBM said negotiations had proved fruitless.

"IBM believes it must now pursue the litigation," the company said.

The Judge, Spencer Williams, has called the parties to court on May 19 to discuss the next step.

National Advanced Systems lawyers are angry at IBM's stance and are believed to be demanding the return of certain documents from the company.

The case has already had considerable repercussions. Two top Hitachi executives and two engineers have been removed from their jobs in Japan. And Hitachi was fined \$10,000 after pleading guilty to conspiring to steal IBM design information on the 3081 mainframe and MVS/XA operating system.

Hitachi admitted paying over \$500,000 for IBM documents but said it did not know they were stolen.

It pleaded guilty in exchange for assurances from the US Justice Department that no further charges would be brought against it.

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Amdahl takes on IBM 3725

AMDAHL has replied to the launch of IBM's 3725 communications processor with a compatible system claimed to provide 20% more throughput at 85% of the price. The new 4705B is also 33% more powerful than Amdahl's 4705. The older machine can be upgraded to the 4705B by swapping circuit boards.



HEALY... "Thoroughly practical" machine.

With this announcement Amdahl has increased the asynchronous terminal speeds on both the old and new communications processors to 9,600 bits a second. It has also added a system which enables groups of lines to be switched between two communications processors without the need for a switching "black box".

The Series 2000 features two lines of systems, System 2100 for banking automation, and System 2500 for distributed data processing in business applications. The business packages have been updated from the series 16 and office software such as electronic mail, information retrieval and text processing have been added. Ericsson has already received six orders for the Series 2000.

Both of the systems can be expanded from one to 100 workstations and over two Mbytes primary storage. This does not involve any major hardware changes and uses the same applications program and operating system.

The systems can also function as autonomous minicomputer networks or as part of a large-scale integrated network.

Mike Bateson, Ericsson's UK marketing director said: "Series 2000 puts Ericsson well ahead of its competitors, and we are going out aggressively to corner the UK market."

Ericsson has adopted a deliberate strategy to get into the market for information systems over the past three years. To this end it took over the data processing company Datasab and the office automation company Pacit.

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Cool response to Osborne's latest

by Philip Hunter

THERE were few surprises when Osborne last week launched its second computer in the US. The Osborne Executive is the same weight as its predecessor, the Osborne One, and comes in the same grey carrying case.

But with the new model, Osborne is making a play for the IBM-compatible personal computer market, and hoping to appeal to large companies as well as first time business users. An upgrade board carrying the Intel 8088

microprocessor used in the IBM PC will allow it to run under the IBM PC-DOS operating system.

The Executive will not be available in the UK until the autumn, and is unlikely to cost less than £2,000. Initial response from dealers is cool. "We need new machines like holes in the head," comments Andrew Margolis of Osborne dealer Lion House. "New machines take time to debug and need a fresh marketing slant."

The Osborne One had lots of bugs," Margolis adds, "but the US had to deal with most of those."

The Executive is also criticised for lacking innovation and being just a souped up Osborne One with a bigger screen. "People are disappointed that we came up with a thoroughly practical sensible machine," realises Osborne UK managing director Mike Healy.

"We've not experienced more problems with the Executive," Healy adds, "but more opportunities. The Osborne One was aimed at the first time business buyer. Now we are aiming at big firms."

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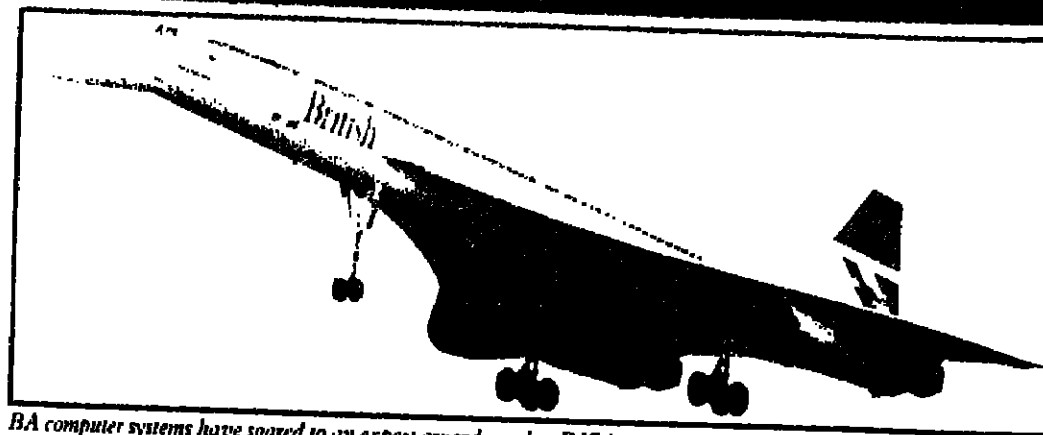
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BA computer systems have soared to an export award... but BIS just missed out.

BIS banking exports take off

by Philip Hunter

BIS Software almost doubled export sales of its banking systems to £7.6 million last year, but still failed to pick up a Queen's Award for Export Achievement. The company has taken the award for the last two years, and in 1982 it also won the Institute of Marketing's Annual Award.

"I guess it's disappointing we didn't win a third Queen's Award with exports up 81%," admits disappointed marketing manager Sam Smith.

BIS figures were as good as some of the companies that did win awards, Smith claims. But un-

like the others, the improvement was not dramatic.

Overall sales of BIS Software were up 68% for the year ending 1982, and orders expected to be fulfilled this year total £10 million, £2 million of which were taken in February alone. Profits will not be announced until results of the whole group come out in June.

BIS Software's main product is a suite of banking programs called Midas, which run on IBM's System 34 and System 38. These dominate the international banking systems market.

The key to export success of Midas is the ability of the package

to be adapted for local requirements and to cope with particular idiosyncracies of particular foreign banks.

The company was nearly caught out when adapting the package for the Japanese, since bank interest there is added on both the first and last day of the month, rather than just one or the other as in most Western countries.

BIS has just announced a new module for Australia to deal with pledged securities which banks use to avoid paying too much tax. The company is also developing programs to handle the financial futures market in London.

BA exports please the Queen

by Andrew Thomas

NINE companies were singled out for information technology efforts in this year's Queen's Awards, announced last week. Logica VTS won for its VTS 2200 word processing package, and the BBC and IBA shared an award for teletext development.

Rediffusion scored with its flight simulation system WIDE, and Quantel won its second prize for technological achievement for its digital production effects system which manipulates live television pictures in real time.

Audio Kinetics was rewarded for microprocessor-based machine control equipment, Dabit for telecommunications components, STC Submarine Systems for underwater cables, and Metier for its project management system Artime.

British Airways won a second Queen's Award for its computer system, just six months after being voted Airline of the Year by business travellers. The award for

Export Achievement comes in recognition of its success in worldwide sales of software, telecommunications systems and services.

BA systems include the MAXIPARS reservations package, fares systems, and a departure control package which is now used by 22 of the world's airlines. In addition to systems sold for use on customers' own computers, the airline sells space on its BABS network to 21 other airlines.

The largest single software order won by BA came last November, when a £1.5 million contract was signed for the provision of computer systems for the Egyptian national airline, Egyptair.

Other airlines using BA systems include United, Qantas, Saudia, Varig, and Pan American.

No computer manufacturers were recognised in the 200 awards presented last Thursday. CAD firm Racal Redac received an award in 1982 and ICL has won three times, the last being in 1976.

Plexus says no to \$1 million

by Andrew Thomas

CALIFORNIA-based supermicro maker Plexus has secured a further \$6 million in venture capital, bringing its total in three years to \$12 million.

And, according to company president Bill Jobe, the offer of an additional \$1 million was rejected because Plexus doesn't need the cash.

"We'd rather keep the number of shares down," says Jobe, "so we can meet our target of \$1 a share. All we would have done with the money was to put it somewhere we would have got interest on it."

Each of the company's seven investors in the two previous cash injections increased their investment in Plexus, including London-based financiers Abingworth. Five other US concerns contributed to the \$6 million. The extra million was offered by a second consortium wanting to take a stake in Plexus.

One area in which Jobe sees the money being used is that of business graphics.

"Colour business graphics is the big hole in our line. It's going to be next year's big thing," he says.

Plexus' new products for this year were announced last week; a Unix-based network operating system, NOS, and a link between Plexus 16 and 32 bit supermicros and IBM mainframes.

NOS is an Ethernet system which Plexus claims allows the for-



JOBE... Turned down million.

mation of a network of individual systems that can out-perform minicomputer installations.

"NOS turns our systems into supermicro building blocks," says Jobe, "giving a flexibility that minicomputers and superminis can't provide."

The supermicro-mainframe link is claimed to be the first Virtual Protocol Machine implementation under Unix III, and also supports RJE under the HASP multileaving workstation protocol.

VPM is automatically included in the Plexus implementation of Unix III, and the RJE option costs an additional \$865. NOS will cost \$1,725 per system when it becomes available in July.

SALES BRIEF

Imperial is first to get big Cyber

THE first UK order for Control Data's Cyber 170/855 big mainframe has come from London University's Imperial College. The 170/855 was launched a year ago as a direct rival to IBM's 3081.

Imperial College is a long-standing Control Data user. The 170/855, valued at £1.5 million, will replace a 170/720 and run alongside a Cyber 174.

The two machines will share disc files and peripherals and will serve about 600 terminals and microcomputers under the college, in other universities and in secondary schools.

They will also link into a London University network, communicate directly with processors at the main university computing centre and at the Science and Engineering Research Council's Rutherford Laboratory and hook into the national university network, which is based on the X25 packet switching protocols.

Portuguese power

UK CONTROL systems maker Westinghouse has netted a £3 million contract from Portugal for equipment to control the national electricity power supply. The system is based on two DBC Vax computers, and will consist of a national centre in Lisbon with four regional control centres and a data transmission network.

Scientific Scots

COMPUTER Technology, the UK's leading rival to Tandem in the market for fault-tolerant hardware, has won its first scientific order from Scotland. The Forth Valley Health Board has ordered a CTL 8066 computer with Momentum memory option, together with the company's Phoenix laboratory system, for use in the haematology and biochemistry departments.

Traffic contract

FERRANTI has devised a new way of collecting traffic information for the British government in a £2½ million contract. Outstations supplied by sub-contractor Golden River Company will gather information from sensors embedded in the road and pass it over the public telephone network to Ferranti Argus 700 computers.

Thunder system

CAP is supplying the meteorological office with £200,000 worth of computer equipment to help track Europe's thunderstorms. The scientific group of the company will build a real time system round a Perkin-Elmer minicomputer to analyse data received from unattended stations that detect the flashes of lightning.

Leasco database

DATA General has made one of the first UK sales of its MV1000 computers to Leasco Software of Maidenhead, Berkshire. Leasco will use the computer to build an online database system as part of a £1.4 million contract with the US insurance company, Commonwealth Land Title Insurance Company of Philadelphia.

Process control

PRESTCOLD, one of the Suter group, has invested £220,000 in a manufacturing control system designed by UK control software specialist Comserv. The control system will be used to help make compressors and condensing units for refrigerators.

\$20m contract

US MAKER of small business systems AES has beaten Wang and Four Phase to a \$20 million contract to kit out US lawyers with word and information processing equipment. Attorneys offices across the US will be given a total of 123 AES Multiplex systems for applications including scheduling of court cases.

CP/M is now tuned in to C

by George Black

DIGITAL Research is to start delivering C-language versions of its popular CP/M operating systems this week.

Author of the C-compiler, Michael Lehman, assured a software vendors' forum in London that C would get the "utmost care and attention."

"Virtually all our future developments will be in C," he said. Lehman, who was also the author of the industry standard Pascal compiler, spent some time outlining the virtues of C over those of Pascal to the 450 guests at the forum.

The first C-based version, which is claimed to have the advantage of greater portability and compactness over its Assembler forerunner, is designed for the Intel 8086 chip machines.

CP/M-68K - the version designed for the Motorola 68000 chip machines - is bundled with the 8086 version, but Digital says this is not a full implementation. Lehman's complete 68000 implementation may be available by August.

He told the conference: "C is a superior language. It is not something you would give your grandmother to drive on a Sunday afternoon."



LEHMAN... "C is not for grannies on a Sunday afternoon."

A new support system for independent software vendors is being introduced by Digital, which says it is now recognised that their needs differ from those of the ordinary end-user.

Lehman said he saw the industry moving in the direction of "layman languages", such as Logo.

They would be getting a lot of attention.

Schools and colleges are given a Prime cut

by John Riley

US MINI maker Prime last week announced a £4 million scheme to give schools and colleges half-price systems.

There are three separate programmes. The first, the Educational Support Programme, is to allocate £2 million to give small educational institutions, including schools, a 50% reduction on complete systems based around a Prime 2250 mini-computer. The only stipulation is that they are used for teaching purposes.

About 100 systems, comprising 1 Prime 2250 with 1 Mbyte memory and 68 Mbytes disc storage, two VDUs, a serial printer and £12,000 worth of Prime software, are offered for £20,000 each on a first-come first-served basis. The remaining £2 million is for

two other programmes. The Education Allowance Programme gives a 40% discount on most Prime hardware and an 80% discount on software for institutions using the equipment for degree courses. The Education Discount Programme allows a 20% hardware and 50% software discount for all educational establishments with no restriction on use.

Neil McMullan, managing director of Prime (UK), said: "Both education and Prime stand to benefit. We are offering the sort of equipment the Alvey Report recommends for IT training, and are reaffirming our commitment to the educational market place."

"More people will be educated on Prime systems, and educational institutions, which are high visibility areas, are prolific producers of



McMULLAN... committed.

software, which we are keen to encourage."

Gale Aguilar, Prime's vice-president, systems marketing, commented: "We are now 10 years old, and have just entered the Fortune 500 top US companies. We are now in a position to make more long range investment."

Prime has four distinct targets, affirmed McMullan. "These are information technology and office automation; distributed data processing and information management, CAD/CAM; and education and research," he said.

Electronic document delivery is on the way

by George Black

PROJECT Hermes - an electronic document delivery service planned by the Industry Department - looks as though it could now get off the ground.

Over 150 organisations which received the Department's mailshot have said they would like to take part.

The main users of the service are likely to be librarians. Possible providers of information for the telex scheme include the BBC Monitoring Service's summary of world broadcasts, Elsevier International's bulletins, London Contemporary Archives, London Business School's management journals, McGraw Hill's publications listings and Sweet and Maxwell's legal journals. Data from various government bodies and li-

braries is also likely to be provided. It is intended that Hermes users will be able to communicate by electronic mail with other system users. British Telecom is to provide a directory of UK subscribers from January 1984. Technical details are being worked out by BP's systems subsidiary Seicon.

Last month Under Secretary John Butcher announced that it had appointed five companies - Ferranti, Plessey, Miel, STC and GEC - as authorised telex suppliers.

Hermes users will get 50% off the cost of equipment if they buy from these, with the government injecting a total of up to £4 million by March 1984. The service will run over the public phone network and BT's packet switched service.

OD moves from Data General to Texas

by Robert Parry

A SYSTEMS house specialising in minicomputer applications for manufacturing industry, OD Systems, has turned away from Data General for its low entry-level offerings. Rather than move down the DG range from the MV machines its Mancos system is implemented on OS Systems has plumped for the Texas Instruments business systems.

"We looked at - and implemented - Mancos on the low end Data General CS machines," says sales director John Tattershall, "but they were nothing like as good as the TI minis."

The main attraction was the software compatibility throughout the range that comes from running anything from the single-user System 200 up to multi-user System 800s under the same IX/3 operating system.

The Mancos suite of software is itself modular, so customers can extend the system to fit new needs, and the TI kit gives a similar easy expansion path.

"Traditionally with manufacturing systems there has been a gap between mainframes or large minis and microcomputers," says OD managing director Philip Pirshaw.

"Now Mancos on TI kit fills that gap with small to medium minis. Large systems, with expensive turnkey software which are expensive to install and manage are at an end."

The smallest single-user system starts off at just below £9,000, but would only include one aspect of the Mancos suite. For a starter system bringing in the three main aspects - the manufacturing database and inventory control, accounting ledgers, and invoicing - a company would really need to spend around £20,000 for a multi-user System 300 and software modules, says Tattershall.

OD Systems' aim is to encompass shop floor automation and CAD work in the same company-wide computer system.

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Designing an IMS/OLI database	5 days	£500	25.04.83, 18.07.83, 10.10.83
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Exactly the same is true of Saabs. Between the 99 GL at £5950 and the five-door Turbo at almost £12,000, there's as much difference as between a promising young executive and a Managing Director.

And yet, in many fundamental respects, all Saabs are identical.

Perhaps it's to do with being Swedish, with driving conditions as arduous as any in the world, a car manufacturer who tried to cut corners on his less expensive models wouldn't survive a single winter.

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French take personal approach to end users

by Jack Gee
CAP GEMINI SOGETI, the French software service company, has launched a European programme to train sales staff to negotiate with end users in companies which are installing big batteries of personal computers.

Chris Ugander, president of its Europe group, said in Paris: "It is still too early to say how microcomputers will affect our business. But the purchase by individual firms of hundreds or even thousands of personal computers tied in to local networks could have a big impact."

The GCS European chief added: "Personal computers will speed up the process of putting computers into the hands of end users. Data processing managers will lose much of their power."

Explaining why his company is retraining sales personnel for this new situation Ugander said: "We can no longer talk our own DP jargon because 55% of our sales managers report that end users are the key people who take the decisions now. We want to make sure our sales staff change their approach and grab the new opportunities."

CAP Gemini Sogeti, which has subsidiaries in nine European countries, is now looking for



DREYFUS... "We will probably try to acquire a medium-size company."

openings in Italy and Austria.

Vice-chairman Philippe Dreyfus said: "Italy is one of our priorities. We will probably try to acquire a medium-size company rather than start from scratch. There is no question of going after the big existing firms such as Italtel or Olivetti's subsidiary Sintax."

Underlining the role of end users and the opportunities which their increasing predominance offer to CAP Gemini Sogeti, Dreyfus said: "In the US today 85% of Cobol programs were written 20 years ago. It could take another 20 years to rewrite them in the new computer languages. More and more of our competitors are leaving the tailor-made software business. This is our big chance."

Ugander said that in spite of the increasing emphasis on micro-based systems, CAP Gemini Sogeti would not depart from its traditional marketing policy.

"We are driven by the needs of the market, not by technique. We don't try to build Concordes and achieve technical successes which cannot be sold," Ugander emphasised.

He added: "We look at local requirements and build our operations around these. That is why we have just set up an office in Stavanger, the Norwegian oil centre — because the number of computer installations there is increasing in a spectacular manner."

Dec means business with Vax

by Philip Hunter

THERE are now more commercial than scientific users for Digital Equipment's powerful Vax minicomputer family. And Decus, the DEC user group, has at last recognised the commercial side of the Vax by forming a Vax commercial users' group, which will meet for the first time in May.

DEC has just announced a powerful terminal database system for the Vax and is developing a relational database. But Steve Riley, of Decus, says the significant moves were the implementation last year of the Codasyl database system and also of the international standard version of Cobol, the world's leading commercial systems language.

Meanwhile third party software houses have muscled in on the Vax with software for order processing, invoicing and payroll. Software Sciences, part of the Thorn EMI group, has transported its Opra order processing and stock control system from DEC's PDP-11 minis to the Vax.

The Vax version costs £15,000, and offers the user split second response times, and the ability to include an almost unlimited number of products. "Opra is probably the first complete distribution system to take advantage of the Vax," says Software Sciences sales director David Packwood.

Package Programs has developed a payroll system for the Vax, and commercial software is also available from Xerox, BL Systems and Allen Computers.

Decus member Arrick Wilkinson says that it should not normally be difficult for software houses to convert software written for the PDP-11 to the Vax. Programs for the PDP-11, which has only 64K central memory, had to be carefully written to save space.

To convert programs written in Cobol from the PDP-11 to the Vax, it is necessary only to recompile the individual code segments, and then remove the complex linkages needed to make the package run on the PDP-11.

Safety code call for chip controlled processes

by John Riley

MORE accidents will occur with the proliferation of increasingly complex chip-controlled industrial processes unless a code of safety practice is agreed, says a report published last week.

It points out that although microprocessor-controlled systems, for example in robotics, offer considerable benefits in terms of productivity and quality, there are inherent safety problems. Unconventional precautions have to be taken as electronic failure modes are complex and not always predictable, the devices are susceptible to electrical interference, and latent software errors may cause dangerous situations.

These problems are being examined by the Health and Safety Executive. It is drawing up a code of practice which will provide advice on safety, environmental and operating considerations. The safety aspect will emphasise programming considerations, backup systems and emergency shutdown systems, and reliable software. The environmental considerations will deal with problems caused by electrical interference and fire protection, and guidelines will be laid for operating and maintenance.

*Manufacturing and Service Industries, Health and Safety 1981, Her Majesty's Stationery Office, 1983. £6.50.

Home shopping and banking may be worth \$30bn by 1995

by Nuala Moran

THE provision of computerised services such as shopping and banking from the home will become a \$30 billion business in the US by 1995. This is the conclusion of a two-year study of the consumer attitudes of 700 families conducted by Booz Allen and Hamilton, an international management and technology consulting company.

Of those surveyed 60% say they would buy basic services for \$15 a month, 75% said they would use home banking and bill-paying services, 70% said they would use

home security services and 50% said they would use video games.

Hans Schwimann, a vice-president of Booz Allen, says the market for these services will grow rapidly from 1986 onwards, much sooner than industry experts have predicted.

"With the timetable for introducing such systems to the market so close at hand, the stakes for a variety of industry participants are huge", Schwimann adds. Opportunities will exist for European manufacturers of consumer electronics to have a share in a £10 billion market, he says.

COMPUTASTARS

They're off!...in the 1983 DP Olympics



Sponsored by Computer Weekly.

by Andrew Thomas

OUT with the linament and elastic bands on Saturday.

Birmingham's Alexander Stadium sees the inaugural meeting of this year's DP Olympics, when European champions Kalamazoo put up no fewer than four teams in defence of their title.

Kalamazoo will be looking to avenge their fourth place in the Jogle '83 John O'Groats to Land's End relay held over Easter, when they were beaten by the gallant Computastars team, which finished third after Barclays Bank and Rowntree Macintosh.

Jogle '83 raised between £30,000 and £40,000 for charity, and well over half the entrants were Computastars athletes. Some individuals were heard to remark that the run was good practice for Computastars itself.

Alongside the four Kalamazoo teams will be three from Grand Metropolitan Hotels. Scottish Widows are back too, with two contenders for the Andrew Thomas award for pretty silly names. The Jockstraps is predictable enough, but the veterans' team name deserves a special award for tortuousness — The MacThusselias. A signed photograph of my good self is winging its way to them.

A signed photograph of my bad self will soon land on the doormat of Horizon, whose two teams certainly deserve all they get with the men calling themselves Horizon Shines, and the women Horizontelles.

The British Telecom Memorial Award for the highest number of telephone calls to secure an entry

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The British Telecom Memorial Award for the highest number of telephone calls to secure an entry



Women's rugby? It must be Computastars.

goes to the British Shoe Corporation which managed a staggering 12 calls before its entry was finalised.

And one of last year's teams showing commendable forward thinking is Compower, which is waiting until next year when they'll be old enough to enter the veterans' competition. Clever thinking.

A full report on the Birmingham heat and the 23 male, five female, two small units and two veteran teams involved will appear in the May 12 edition of Computer Weekly.

Watch this space.

Birmingham line-up

Meeting starts 11.00

GROUP 1
Kalamazoo A
Grand Metropolitan 1
Open University
Pisons (Pisons Drug Squad)
BL Systems A
Sandvik (Sandvik DP Gumbies)

GROUP 2
Grand Metropolitan 2
Kalamazoo B
Horizon 1 (Horizon Shines)
British Rail Board
VAG UK
British Shoe Corporation

GROUP 3
BL Systems B
Probe Data Systems

Kalamazoo C
Scottish Widows (Jockstraps)
Computer Systems & Products

GROUP 4
Grand Metropolitan 3
British Shoe Corporation
Fletcher's Computer Services
Horizon 2
Bristol & West Building Society
Scottish Widows (MacThusselias)

GROUP 5 WOMEN
Kalamazoo
Open University
Sheffield Insulating
Horizon (Horizontelles)
Bass Computer Services (Bass Spectals)

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whole business can be carried in a small case. Naturally, the Hyperion is IBM-PC compatible — and it's cheaper.

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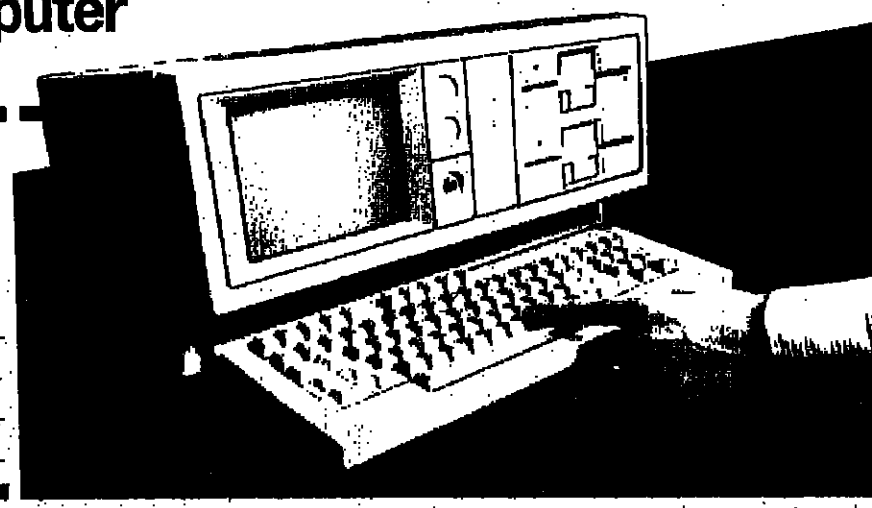
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SOFTWARE FILE

French airline flies to Univac

AIR FRANCE is preparing to move its management software on to Univac 1190 mainframes when the new and more powerful machines come into service next year.

The French national airline's four main systems - Alpha-3 controlling reservations, Sytare the ticket module, a Gaetan overseeing check-ins, and Sage the flight schedule record - began running on 1108s before being shifted on to four 1100/40s and four 1100/80s. The need to maximise operational efficiency, with world air traffic declining during the recession, has persuaded Air France to make a massive long-term investment in bigger machines.

A team of 160 systems staff is updating the Assembler and Fortran programs to take advantage of the greater speed and storage capacity.

The airline's data processing facilities were moved from Paris to the Riviera in 1977 when the government decided to encourage the decentralisation of service industries.

Backlog sparks a generator boom

APPLICATIONS generators came under the microscope at a packed seminar in London put on by BIS Applied Systems.

The booming interest in the subject - which reflects a mounting backlog in Britain's data processing departments - was shown by the turn-out of 300 delegates from many of the country's biggest companies for the one-day conference on automating system development.

BIS's September 1982 event, on fourth generation languages, drew only half that number.

The object was not to evaluate the comparative merits of the tools available, but to encourage users to decide what would be best suited to their own computing environment, said BIS director David Broughton.

Main products to come under user scrutiny were Info, the Henco system sold by Doric Computer Systems of Watford; Mathematica's Ramis-11; the Application

Language Liberator, ALL, written by Data Technical Analysis and distributed by CMC; and the German Soflab's Maestro, marketed by Philips.

David Whiteside, managing director of Scarab Computer Services, said they had looked at 30 software products and ALL had achieved the best results under tests. It completed 98% of a job conventionally scheduled for three weeks within three hours. Information Builders' Focus had come second.

BIS senior consultant Peter Sellars predicted that ALL's predecessor PRO4 would soon become far more widely available in the UK.

These generators would not do away with the need for analysis, Sellars warned. System development could still be expected to be a tortuous activity, despite a 10-1 improvement in programming productivity, he said.

Keith Craddock, data process-

ing manager for Davy Engineering's subsidiary Davy McKee, said his firm's use of Info had been a great success, boosting individual programmer's output by five times and improving overall department efficiency by eight times. Ron Cowie, for BP Oil, attested to the benefits for Maestro, and Bob Hall, for ICI, to those of Ramis-11.

Doric managing director Mike Hare undertook to write a system using Info while the conference was taking place. He followed a specification given to him by BIS at 9.30am. By 4.30, when delegates were invited to see how he had fared, 16 out of 23 milestones had been passed. Broughton commented: "We never thought that he would get that far, as it was about 12 to 15 man-weeks of Cobol work."

BIS is to unveil its own project support system, Modus, in competition with Maestro, in the middle of the year.

Broughton... "Encouraging users to decide what's best".



MICRO NEWS

Italians follow chip trends

ITALIAN chip maker SGS Ates is following the semiconductor company trend and moving into systems. It has brought out a multi-user business system, the UX16, built around its Z8000 processor second-sourced from Zilog, and running Unix - an implementation of Unix version 7.

"We see our entry into the business market as a natural extension of our activities," says SGS managing director for northern Europe, Waldo Thom. "The SGS UX16 is available with business oriented facilities to allow software applications and business automation tasks to be developed both quickly and economically."

The UX16 grew out of a development system to support its range of Z8000 microprocessor products - as Zilog's System 8000 business system grew out of its Z8000 development system - and has application packages available for computer-aided design, business accounting, financial control and office automation.

It comes with integral Winchester disc mass storage, and can be linked with other UX16s in networks.

French firm will make Fortunes

by Jack Gee
THOMSON-BRANDT, the State-owned French electronics firm, is to begin manufacture of Fortune's Micromega microcomputer at a plant in Brest, Brittany this summer with an output target of 600 machines a month in 1984.

This objective, which will be modified according to market demand, is based on the expected sales this year in France of 2,000 units - about one tenth of the upper end of the French microcomputer market - of which only about 500 will be made in Brest.

Thomson holds a 33% voting stake in Fortune although its shareholding in the American company dropped from 21.6% to 17.4% following the recent flotation of its shares on the New York stock exchange. But the French firm remains the main foreign partner in Fortune.

Thomson is confident it can develop sales of the Micromega - priced at between 70,000 Francs

(£7,000) and 170,000 Francs (£17,000) because it argues the machine fits neatly into a slot for office automation.

The French nationalised company says the cheaper micros work out too costly for a firm when introduced in large numbers in the same way - leaving a middle range below the mini ready to be occupied by the Micromega.

Thomson-Brandt's decision to launch production in France of the Micromega is clearly dictated by the success of the Apple and the arrival of IBM's personal computer on the French market - although overall sales of micros this year will be small compared with those in Britain.

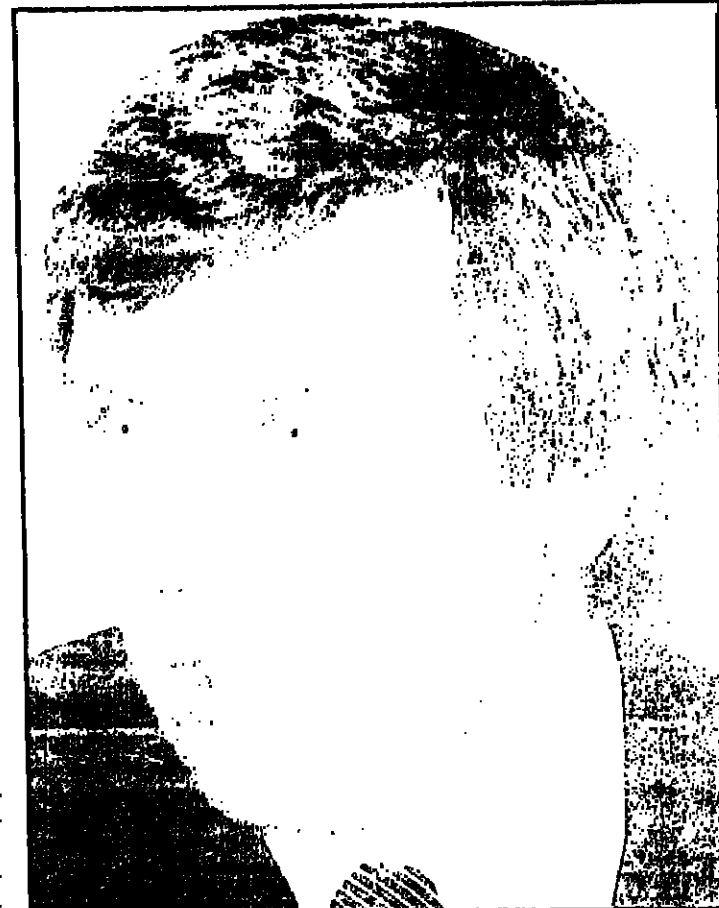
A "mouse" device of the type available for Apple's Lisa will soon be available for the Micromega. Thomson-Brandt is organising a new marketing network to promote the Franco-American micro. It claims to have 60 distributors ready and 20 maintenance centres.

It expects that the private sector will provide only 32% of orders with 68% going to government departments and publicly owned firms.

Thomson is one of two major OEMs Fortune sells to - the other is US company Bunker Ramo - that do not compete on a mass basis, but are incremental to Fortune's own business, says Fortune's marketing vice president David Van Den Berg. Bunker Ramo sells primarily to banks and brokerage firms.

Fortune itself is turning its marketing attention to direct sales to large organisations. This route has been important to Fortune in the US, where customers include Ford, the Bank of America and Bell Laboratories.

Fortune's recent offering on the New York over-the-counter market raised more than \$90 million, and it has a further \$20 million line of credit from the Bank of America. So far it has spent more than \$9 million on R&D.



Van Den BERG... "OEMs incremental to Fortune's own business".

'Adapt or die' warning to batch bureaux

BATCH bureaux will be dead in a few years if they don't adapt, warned John Davis, managing director of Fletcher Computer Services in Birmingham last week.

His bureau is adapting by moving towards online database services. Conversion from batch via offline databases to fully online systems is being carried out with the aid of Burroughs' Linc system generator.

Linc - the logic and information network compiler - was introduced by Burroughs late in 1981, but has remained largely untested in this country until now, despite enthusiastic reports from overseas users.

Fletcher recently completed a pilot project for Shell UK Oil to manage its 1,500 road tanker fleet. "They desperately wanted to go live in ten weeks' time and we still hadn't put pen to paper," said John Davis.

"It was equivalent to 100,000 lines of Cobol source code and could have taken us a year to do. So we were in a bit of a hole."

Linc dropped on his desk at the right time, he said. They had persuaded Shell to put back the completion date by only three weeks and, using Linc, had been able to meet that target.

Shell project engineer Dave Morgan was pleased to be able to announce "the most radical change that has ever taken place in the administration of a commercial fleet."

Eight Shell sites and the head office in London are linked to Fletcher's mainframe via Shell's own Wythenshawe computer centre.

The system gave a complete breakdown of operating costs of all vehicles, down to the level of engine components.

With oil companies struggling to break even as the recession continues, transportation of fuel is a vital element in their costs, which can only be effectively controlled by managers if they have accurate and up-to-date information.

"They were putting the pressure on us to deliver in an impossibly short time and without a good system generator we could not have done it," said Davis.

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Japan's UK expert investment begins

by Kevin Cahill
The first Japanese investment in UK expert systems formally commenced this week when the Polytechnic of the South Bank started two students working on expert systems for Sord Computers of Tokyo.

The two students are part of an overall package which will cost Sord about £30,000 a year over the next three years and is intended to result in commercial packages for use of Sord's rapidly lengthening list of microcomputers.

According to the director of Knowledge Based Engineering (KBE) centre at the poly, Annie Brooking, the first systems her staff will develop will centre on self-tutoring systems in maths and English for use of Sord's M5 micro.

Although a principal objective of the Sord South Bank collaboration is the production of commercially usable expert systems, from which the poly will derive a 10% sales revenue, the Sord sponsored students will engage with other staff at the KBE centre on basic research into expert systems.

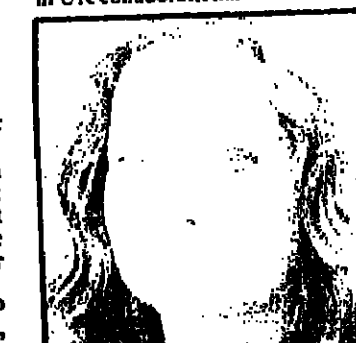
Brooking is already engaged in some of this research and her joint application for an Esprit grant from the EEC is thought to be one of this country's front runners for that money.

The KBE centre was set up about six months ago by Brooking, who believes that such centres are the only way for the UK to retain

its current lead in artificial intelligence and expert systems.

According to Max Bremer, who is head of the Open University's KC Systems department and who is also on the advisory committee to the KBE, the UK will lead the world in artificial intelligence and knowledge-based engineering over the next few years. The Japanese believe this, having drawn substantially on UK sources like Philip Trevelyan of Newcastle University and Roger Needham of Cambridge to develop their expert system components of the Fifth Generation Computer project.

Sord's president Takayoshi Shima, who used the occasion to indicate that the desk top array processor his company is developing will be available next year, said that the investment in the polytechnic was just a first step in UK collaborations.



BROOKING... wants cash.

Zilog's pirate woes grow

ZILOG's troubles with unauthorised copies of its huge-selling Z80 microprocessor are growing. As well as the action for patent and copyright infringement under way in the US against Japanese manufacturer NEC, threats have surfaced of an assault on Western markets by an East German manufacturer.

The East German company VEB Funkwerk Erfurt is reportedly pushing on the competitive pricing of the Z80 parts, and was seeking Western orders at the recent Hannover Fair. But so far the impact on the UK is so small as to be almost invisible.

"We are worried because the East German chip is an unauthorised copy," says Zilog's UK managing director Phil Pitman. "But we know very little about it really."

It is nothing like as widespread as the NEC Japanese copy, and I would expect any East German device to be viewed with suspicion over here.

Chip distributor Hi-Tek is also dubious about such a device. "It is just a copy, then there are lots of questions on the quality that would need to be answered," says marketing director David Greenfield. "There is no point in having the cheapest chip around if it doesn't work. Even the really low cost video application companies have very rigorous quality control."

There are already various incarnations of Zilog's original Z80 design around. Apart from Zilog itself, versions are made under licence by Mostek, SGS Ates and Sharp.

Micro News is compiled by Robert Parry



LAMOND... An edge over his US counterparts.

Britain's own home-grown IBM-watcher

IBM-watching is a whole industry in the US. A typical IBM-watcher is an individual who gathers intelligence information about Big Blue, and earns a living from market reports and consultancy services to IBM's competitors, and to stockbrokers.

Fred Lamond is our home-grown IBM-watcher. His fluent command of the French language gives him an edge over his US counterparts who often have to speak through interpreters at conferences.

His style is different, too. Whereas US-based IBM-watchers employ armies of sidekicks to make their jobs easier, Lamond does not even have a secretary. And where they lay much emphasis on information for investors, Lamond concentrates on IBM's technical side.

This approach gives Lamond a fresh perspective on the rationale behind IBM's moves.

For example, he contends that IBM's entry into the Personal Computer market is at least as much a defensive as an expansionary move.

"Ever since Tandy became the first personal computer manufacturer to announce an IBM 3270 terminal emulator on its TRS80 in June 1981, personal computers have become potential replacements for all 3270 terminals, especially those used for accessing personal computing programs such as IBM's VSPC, CMS, ADI and Plancode packages," says Lamond.

"Since IBM sells the Personal Computer on both sides of the Atlantic, not only through independent retail chains but also through its direct sales force in quantities of 20 or more, this proves that it regards its existing medium to large computer users as an important PC outlet."

10 YEARS AGO

FROM COMPUTER WEEKLY OF APRIL 26, 1973: A report commissioned by the Conference of Industrial Research Associations stated that the National Computing Centre was ineffective and that its links with industry were weak. The allegations

were refuted by the NCC... Lord Harewood resigned from the Software Houses Association, leaving the SHA ranks sorely depleted. ICL launched the 2903 aimed at the lower end of the market. Rascal-Milgo won a Queen's Award for export performance.

Penny mentality—when pounds are needed

TIME is running out on attempts from many quarters to coax, cajole or goad the holders of the national purse strings into creating the climate in which major new information technology industries can be built up.

Yet it is painfully plain that such an initiative can come only from government and cannot be generated within the industry as it exists, since control of companies accounting for by far the larger share of the industry's sales resides elsewhere than in Britain.

Their masters decide on new products and new plant in terms of global strategies, or the reactions of New York Stock Exchange analysts, whichever comes first.

It is pointless, meanwhile, to compare the new government-provided research and development budget of £230 million for "future industries" with what James Callaghan spent in 1978/9, even if it is 135% more in real terms. The new funds are a mere 10% of what the Mitterrand government has been planning to spend this year, next year and right up to 1988 on an ambitious, not to say spectacular £14,000 million plan to emulate Japan.

It is Jean-Pierre Chevènement and his successor as French Minister of Research and Industry, Laurent Fabius, not Callaghan who needs to be scored over. It is the workings of the development contracts placed by America's Department of Defence that should be closely studied.

Of course, it could be said that Alvey Committee's proposals to spend around £350 million on enabling technologies by 1990 compare well with the Japanese plan, sponsored by that country's DoI - MITI - to spend a reported \$450 million between now and 1991 solely on building a prototype fifth generation computer.

But MITI's funds are committed, work is in progress, vast sums are being poured into developments of VLSI circuits and the fully automated manufacturing methods they pre-suppose, while the DoI appears to be shying away from Alvey as it considers yet another IT industry report.

It will stem, in increasing measure, from software imports as de-

businesses, and compared with France, now about to inject a further £800 million into its Cii Honeywell Bull operation.

It can be shown, very simply and very quickly, that significant action on "future" industries is urgently required. Figures prepared by the National Computing Centre and presented by David Fairbairn at a recent session of Pitcom, gave Britain's balance of trade deficit in this area for 1980 as £300 billion and for 1990 as £1,800 million, on present trends. The deficit, at the moment, comes largely from hardware.

It will stem, in increasing measure, from software imports as de-

Warren Werblow is chief executive of Scicon

Some 115 intervenors contributed to Alvey, even more than those who submitted position papers to the memorable sessions of Select Committees A and B. Were they really ten years ago?

Those sessions constituted the most thorough investigation any UK industry had ever been subjected to and they resulted in a mound of paper, which the then government largely ignored, preferring to pursue the more easily understandable goal of keeping domestic hardware manufacturers alive.

Even there they were faint-hearted compared with Germany, which has spent three to four times as much on domestic computer

vice costs continue their rapid decline.

Britain is putting up a poor performance in the world IT market - this year around £70,000 million - in spite of all the painful efforts to keep alive domestic mainframe expertise and create a domestic high silicon technology centre of excellence. Neither objective is, in itself, a condition *sine qua non* for prosperity or, indeed, for survival in this bitterly contested arena. Only a properly structured strategy, which applies to every facet of the industry from communications to education, will do.

But who will think it out and how, if funds on the French scale



become available, would they be channelled into industry?

Now there's a pretty problem for Whitehall: having to make decisions perhaps favouring one company over another.

So far, the software and services industry has been the poor relation. It is revealing, for example, that, in figures published when the recent £185 million innovation package for industry was announced in the March Budget, the Software Products Scheme attracted just £5 million in the decade 1972-1982.

In June 1982, the scheme was relaunched with a further allocation of £10 million; and now, following further representations by the Computing Services Association, there is a further £15 million, but over three years.

For years we've been saying how important the British software industry is: that it's a national asset that stands comparison with the software industry in any other country. But our money, judged on the international scale, is not where our mouth is.

The key to the future development of leading edge industries must lie in the ability of all of us to think big.

Our currency to date has been in pennies when pounds are needed.

Warren Werblow

DOWNTIME

DEC users coin it

THE Digital Equipment users association is coining it with a £250 million national publicity campaign courtesy of the Treasury.

Docus - as the association's initials - are inscribed on all 250 million of the new £1 coins, issued last week. And the name is not on the face of the coin but in the more unusual, eye-catching position of round the edge.

But the Treasury - a Logabax user - claims the inscription had nothing to do with any links with Docus. Indeed, the full inscription reads "Docus et tutamen," which means "an ornament and a safeguard".

The Treasury says it is a safeguard against counterfeiting, for it is difficult to forge an inscription round the edge of a coin. And to complete the picture the inscription is a quotation from Virgil's Aeneid epic poem.

Pen power

A COUPLE of weeks ago, I whinged at great length over my non-invitation to the ICL Computer Users' Convention at Eastbourne. Imagine then my surprise at the receipt of a telephonic request for the honour of my company at the event.

The invitation did, however, carry the rider "I must once again ask you to refrain from attending Robb Wilmet's presentation."

Perhaps if I mean about this, I'll get invited to that, too.

Russia's other cold war

IF you ask a Chinaman what he thinks of Russian ball-point pens, he will probably reply with guffaws of laughter. By making jokes about the quality of Russian material goods, the Chinese relieve the paranoia they feel about their large neighbour.

In the West we could do with a harmless way of making fun of the Russians, too. So I was pleased to see that some of our academics are starting to tell jokes about Russian weather forecasts.

We decided it was time to see for ourselves if Russian weather forecasts were inferior. Accordingly we studied five day forecasts from about 10 different countries

presented in the form of the synoptic map of cyclones and anti-cyclones well known to watchers of BBC television forecasts.

The forecasts looked almost identical with one exception - the Soviet map. It was, of course, possible that the Russian forecast was right, and everyone else was wrong.

But this is not the experience of the West's leading weather experts, who are baffled that the Russians are so often out of line with their predictions.

"It could be the quality of their computer hardware," suggests one meteorologist, who would rather not be named.

What Burroughs US does...

ONE of the problems with large corporations is the high probability of getting into on-going "one-hand-doesn't-know-what-the-other-is-doing" situations.

Latest of the big boys to fall foul of this truism is Burroughs, which proudly announced a new gas plasma display on April 8.

On April 13, the company in-

Britain's American hope

BRITAIN'S latest great white hope for the wrestling of the America's Cup from the hands of the odious colonials who have held it for 2,000 years or so lies with the optimistically-named Victory '83.

And the computer resources behind the attempt come from, yes, you've guessed it, America. Hew-

lett-Packard has supplied two HP120s and an HP-41CV hand held micro to help our gallant team.

Don't worry about us mate. You seem to be the ones with the problem.

And of course, if we should actually win, the Americans can say that it was their hardware which did it for us.

If we win.



Mainframe nostalgia

BURROUGHS' new entry-level system, the B95, certainly brought a few nostalgic tears to a few seasoned hacks at its launch. Not because the beast is designed and built solely in the UK, but because it brought back happy memories for many people.

How can this be? A new machine bringing jumps to journalists' throats? The reason is simple. The B95 may be just a new mini, but it looks like a mainframe. mini, but it looks like a mainframe.

Whoever was responsible for the external design wins Chad's 1983 Best-Looking Computer Award. At last, those people who claim that micros and minis aren't real computers can buy a mini that looks like all intents and purposes like a mainframe which has been attacked by African head-shrinkers.

It may be small, but it looks like a real computer. I want one.

Chad



ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, April 28, 1983

GATT — a lot of pious nonsense

AN international group of 19 private but influential individuals is working towards a more open exchange of technology information across country boundaries and more liberal attitudes to international trade in services. The so-called International Committee on Trade in Services is working on reports it hopes to put before the next meeting of world government ministers involved in the General Agreement on Trade and Tariffs (GATT).

Whether such a group can be successful is open to question. But any work which draws attention to the mockery known as GATT can only be welcomed.

GATT is little more than a lot of pious nonsense which supposedly opens up government contracts to any suppliers, regardless of their nationalities. But it is that bastion of the free world, the US, which makes the agreement worthless to companies on this side of the Atlantic as far as selling in the US is concerned.

For example the US has managed to get exemptions written into GATT so that agencies including its Department of Transportation, postal service and Department of Energy are not covered by the agreement. Yet contracts from the UK equivalents are open to US firms.

European companies are further hampered by the Buy America Act, introduced in 1933 to protect US firms during the slump. This demands that companies bidding for central government contracts must manufacture in the US.

Any hints of European countries imposing moderate restrictions on government contracts have seen US firms bleating about unfair trading. IBM, for example, threatened the UK government with GATT rules over the contract for the Driver and Vehicle Licensing Centre.

It is interesting that there are six US people on the International Committee on Trade in Services. It is to be hoped that they and their colleagues can do something to shame those countries which do little more than pay lip service to GATT.

Rethink telecomms

CRITICS of the European telecommunication industry came out in force last week.

In Birmingham, Michael Corby, director of the Telecommunications Users Association, said that the government had the structure of its telecommunications mechanism wrong. He recommended that it throw in the towel and begin again.

In Holland, Computing Services Association director-general Doug Eyclons attacked the club of European PTTs, the Conference of European Posts and Telecommunications, as a price-fixing cartel. He sees the monopoly positions of European PTTs as a major distorting obstacle for multinational computing services companies. But he European Commission says it is powerless to act because the CEPT is not a legal entity.

And a group of international business and government leaders has banded together to fight what it sees as "the proliferation of national restrictions to international information flows".

The government, of course, has put forward its Telecommunications Bill in the hopes of going some way towards meeting the latter two criticisms. But with ever louder hints of a June election in the air, it may find that by default it is following Corby's recommendation that it or its successor must begin again.

That would be no bad thing. While the principle of setting British Telecom free is generally seen as a major step towards liberalising the telecommunications industry, the mechanism chosen falls short of a well thought-out policy.

There are two main shortcomings with the UK approach: the Office of Telecommunications (OFTL), which will administer BT's operating licence, does not have the power to ensure that BT does not abuse its dominant position; and it is not clear that OFTEL will issue enough licences to ensure real competition in public telecommunications.

If election fever is premature, let us hope that the House of Lords, who have the last crack at the Bill before it passes into law, does more than give a rubber stamp.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by J. B. Mathews of Gadalming, Surrey, who wins £5. And Chips the computer, who not only produces the comic, but also makes the tea.

School TV Times

Design investigation

MANY organisations are currently struggling with a 50% manpower shortage and the knowledge from practical experience the cost of not getting things right at the design stage.

The problem is finding a way of designing systems that will meet management objectives and user needs while at the same time being able to accept the inevitable future changes.

The National Computing Centre, as part of a project sponsored by the EEC, is currently investigating systems design methods with a view to establishing what a design method should provide, and how existing methods match this ideal.

Unfortunately what is ideal for one organisation may not be so far another and different applications within the same organisation may call for different approaches. It seems likely that there will be many "ideals" depending on circumstances. Certainly there is no shortage of methods. About 80 have been identified so far and doubtless there are more. Some of these are likely to be more closely related to development activities outside the design area, particularly to requirements analysis, and some cover other areas as well as design.

While much work has been done on the development of methods, guidance on the selection of an appropriate method is rather more scarce. To help in such an assessment, questionnaires are being prepared in which participants will be able to indicate their needs of a design method and also their experience in the use of any method, whether proprietary, publicly available, their own, or some combination of these. Similarly vendors of methods will be able to indicate the attributes of their particular approaches.

If any readers would like to participate in the study, I will be happy to provide further information. The findings will be given to those who take part.

G. LONGWORTH
Senior Consultant
DF Methods Division
National Computing Centre
Manchester.

Forum for Unix users

I WOULD like to invite your readers to the inaugural meeting of *unixgroup/UK*, which will be held on Friday, May 13, at 10.30am at NCR, 206 Marylebone Road, London, NW1. To cover administrative costs, a £5 admission charge will be made.

The group will provide a forum for Unix users, software suppliers and manufacturers of Unix-based hardware in the UK to discuss matters of mutual interest. These will primarily revolve round commercial matters.

unixgroup/UK will be an official chapter of *unixgroup/International* and has been formed as a result of strong pressure from Unix users.

I look forward to welcoming anyone with an interest in commercial aspects of Unix to this meeting.

A. J. LAZZERINI
unixgroup/UK

Plus Computers
Langley Mill
Notis.

No manual

J. P. BENNETT's letter (Computer Weekly, April 14) on the article "Invitation to Forth" suggested that Acornsoft's Forth should not have been omitted as it is "one of the most powerful versions on the UK market".

Though this may be true it is an entirely unsupported assertion as, though the tape has been sent out, no manual is available and it is impossible to use the tape without it.

C. W. MARTIN
Sheffield University.

Sharing of experience

ONE of your recent issues carried an advertisement for CMC's range of factory data processing equipment. It indicated that many manufacturing companies were slow to automate their production control but were forging ahead with plans for office automation. This may be the case with the larger firm typical of CMC's prospects but, across the business community as a whole, office automation appears not to be so well established.

The various suppliers of hardware set out an impressive showcase of their products in every medium from the trade Press to peak-time television. What is missing for most business customers is some general perspective of how all this new hardware relates to new technology, can answer and what investment in it can be justified.

One body tackling this type of issue is OFIX (the Office of the

Future Information Exchange). OFIX came into being when a small group of interested users got together to explore issues such as these. It has grown substantially and now provides a forum in which user experiences are shared and a pool of more general knowledge can be established. It is an independent body run by and for end users to enable them to learn from each other and providing the more general perspective needed.

Membership costs only £5 per year and a free information pack is available. If any of your readers would like to know more about OFIX, all they need do is send their business card or letterhead to me and we will take it from there.

G. L. STEPHENS
OFIX Publicity Officer
Chalfont Software Services
10 Linfields
Little Chalfont
Amersham, Bucks.

Babbage Institute

YOUR note (Computer Weekly, April 7) on the appointment of Dale Johnson as associate director of the Charles Babbage Institute doesn't do justice to the founder of that body. This was Erwin Tomash, president of Data Products Corporation. The first issue of the Institute's Newsletter (Vol 1 No 1 May 1, 1979) says: "Feeling that there was a need to be met [to document the history of the information revolution], Erwin Tomash founded the Charles Babbage Institute in late 1977, providing \$150,000 of seed money. Continued funding will come from private sources, both individuals and organisations."

Oxford.

JACK HOWLETT

York's Prolog

YOU describe the York portable Prolog system as a commercial product (Computer Weekly, March 3). To avoid misunderstanding, I should like to clarify the basis on which it is to be distributed.

The system was developed as a research tool, and we are making it more widely available in the belief that doing so will benefit the academic and industrial research community. Unfortunately, lack of resources prevents us from offering formal support.

The portable Prolog system is based on an interpreter written in a portable subset of standard Pascal, and has been run on over 15 different machines. Further details are available from Maureen Bulmer in the Department of Computer Science, University of York.

J. M. SPIVEY
University of York.

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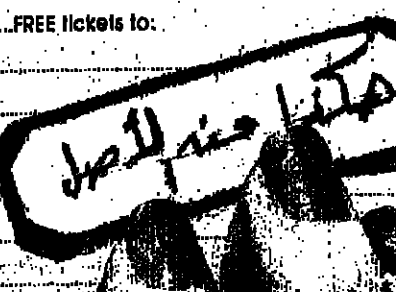
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New Tandem will take the Girobank's strain

CHAMPAGNE corks were popping last week at Tandem, the US-owned world leader in fail-safe computer systems. The company had just signed a £4 million contract with the National Girobank for the larger part of a new and long overdue banking system to replace an existing ICL DME set-up.

Tandem is supplying four of its NonStop computers: two at the bank's head office and one each at the regional offices in Liverpool and Birmingham. The Tandem machines will process the accounts in the regional offices, and will be linked to the central mainframe in Booter.

Girobank has long needed a better system to cope with the 5,000 new accounts each week. The present one is still based on the original system set up when the bank was formed by the Post Office in 1968.

Since then the bank has introduced bank accounts with personal loans among other facilities, and

has seized a total of over a million personal and business accounts from the big four banks.

The banking software that keeps ledgers and updates accounts is having to be completely rewritten to take advantage of the new



NIX...deluged.

operating systems and communications facilities. But particularly important, says Jim Nix, systems project manager, is that the new system will be structured properly.

The development team is deluged with requests for new banking facilities, all of which have to be implemented on the computer before being released to customers. The present software, says Nix, is now too convoluted to allow quick enhancement.

All Girobank transactions are processed at the headquarters in Booter. The Post Office acts as branches, but simply send cheques cashed and deposits made to the Girobank for processing.

There are 20,000 post offices, giving the Girobank more branches than the rest of the big banks put together. This has so far made it impossible to link all post offices to the Girobank computer.

But four post offices are involved in a pilot scheme with a £300,000 grant from the Depart-

ment of Industry, to experiment with counter terminals.

"The money for this runs out at the end of this year, so then there will be a post-mortem," says Nix.

Office automation is also central to the Girobank's plans, and several different systems are being evaluated at present.

But the most interesting work is being done with equipment from Office Technology, a sister company of CTL, one of the tenderers for the main systems contract. This equipment allows text and speech to be recorded and transmitted, as well as enabling office diaries to be kept for inspection at any of the terminals.

"OTL's was the most advanced equipment available at the time," enthuses systems development manager Don Levin.

The Girobank is working with the software consultancy A. D. Little on development of internal electronic communications network with circuits shared by text

data and speech.



Girobank...new systems in the offing.

Who pays best — large or small installations?

WHICH pays the best: a large installation with processors at different sites, or a small microcomputer user? The answer seems to depend on what job you are doing, if the results of a recent survey made by Surrey-based Computer Economics are to be believed.

Computer managers, shift leaders, and to a lesser extent operators seem to fare much better at large than small installations. For programmers and systems analysts the installation size is unrelated to pay.

No surprise here. Managers at larger installations are likely to have more responsibility and more people reporting to them than their brethren at smaller sites.

Similar operators of large machines need to know what they are doing more than those with just one microcomputer to mind.

But programmers and analysts tend to work in teams of similar size at big and small installations.

The survey was based on the November 1982 salaries of 35,000 people at 491 installations. The results give us the salaries of 39 job categories at four different sizes of installation expressed as a percentage of average for the category.

Unfortunately Computer Economics would not divulge the actual salary figures. But we give a sample of six job categories, which makes interesting reading for those admirers of the sausage machine of statistics.

Job title	group 1	group 2	group 3	group 4
Data processing manager	81	96	106	131
Operations manager	84	94	108	130
Systems analyst	94	96	103	100
Programmer	96	97	102	103
Shift leader	78	91	102	121
Operator	84	95	100	114

THE table shows average salaries of six different job categories at four different sizes of installation, expressed as a percentage of the overall average for each job category. Group 1 is small installations, typically a microcomputer with local terminal network. Group 2 is typically a multiple processor or mainframe with a limited online terminal network. Group 3 is a large size online terminal network with database. Group 4 is a group of large centres containing several multiple processor mainframe systems linked together with online database and big terminal network.

Where are VDU operators?

IS there such a thing as a professional VDU operator? It seems that such a breed is rare, at least in Plymouth, where the Health Authority tried to recruit people to help computerise 280,000 patient medical records.

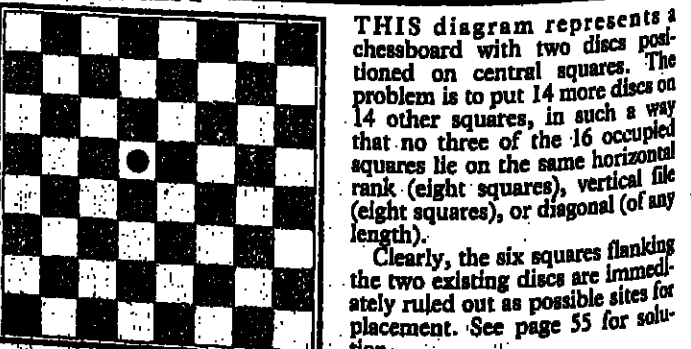
So instead the authority hired 12 part-timers for the tedious work of copying from manual files into a microcomputer driven by software from British Medical Systems.

And the results were astounding, says the authority.

The workers were divided into two teams of six for a morning and afternoon shift each of four hours with two 15 minute breaks.

In this way 2,000 records a day were converted. By the time the work was complete, there were only six of the original 12 left, and yet the work was being done faster than ever.

PUZZLER



THIS diagram represents a chessboard with two discs placed on central squares. The problem is to put 14 more discs on 14 other squares, in such a way that no three of the 16 occupied squares lie on the same horizontal rank (eight squares), vertical file (eight squares), or diagonal (of any length).

Clearly, the six squares flanking the two existing discs are immediately ruled out as possible sites for placement. See page 55 for solution.



Prime Computer announces the appointment of Richard Mott (above) as managing director of Prime Computer CAD/CAM, formerly Compedia Ltd. He has been a Prime manager for five years, and in 1983 became a director of the company.

David Musson has been appointed head of marketing at Prestel. Previously residential services manager for Prestel, he has worked in British Telecom's viewdata service for eight years.

Crown Computer Services has appointed two directors to the board. They are Vic Jeffs, general manager, who has been with the company since its inception in 1981, and Kevin Kelly, market development manager of Beaufort Computer Services, who is currently responsible for directing and co-ordinating the marketing developments of that company and Crown Computer Services.

Gould SEL has expanded its field sales force in South-east England with the appointment of two sales executives. Ian Boyd, formerly with Geisco, will cover the Berkshire area; and Steve Nutt, previously with Burroughs Machines, will cover the South-western quarter of South-east England.

Brian Iverson, formerly head of publicity and promotions with ICL, has joined DBA Computer Services as marketing director.

John Penrose, who was at Hewlett-Packard for 20 years, latterly as group finance manager, has been appointed financial director at CPU Computers.

DIARY

MAY 2
Visit to Future Technology Ltd. BCS Glasgow microcomputer sub-group. Details from W. Jack on (041) 552 4400, ext 3615.

MAY 4
Computer revolution — when will it begin? Branch AGM. IDPM Central London branch. Altergo, Imperial House, 15-19 Kingsway, London WC2. 6.00.

How to choose a micro. IDPM Sussex branch. Town Hall, Market Square, Horsham. 7.00.

MAY 5
The work of the National Computer Centre. Branch AGM. IDPM Birmingham branch. New Imperial Hotel, Temple Street, Birmingham. 7.30.

CONFERENCES

KNOWLEDGE-based expert systems have been in the limelight lately, and the Japanese fifth generation computer project can take some of the credit for this. Hexadecimal Press is aiming to cater for the growing interest in the subject with a short seminar focusing on the practical skills needed to build expert systems. Speakers are practitioners who know the techniques and pitfalls involved in designing such software. Several currently operational expert systems will be analysed and demonstrated. UK venue is Middlesex Polytechnic. It will be held on June 22 and the fee is £64. Details: Hexadecimal Press, 23 Torrington Gardens, London N11 2AB.

DATA Training is to hold its IBM Cobol programming courses, which include JCL, in Manchester from August 30-September 30, and in London from May 23-June 24. There are further London courses in July and August. Each course lasts five weeks and costs £1,205. It is designed to train new entrants into the data processing field to program IBM mainframe computers using the Cobol language. The training is essentially practical with programming exercises, such as the writing and testing of fairly complex programs. Further details from Philip Corker on 01-404 5444.

David Jeffrey has been appointed services manager at Microserve. He was previously UK service manager at Commodore Business Machines having spent 12 years at Rank Xerox before that.

Bob Woods has joined the newly-formed Kongsberg Systems Technology as sales manager. He went to the Kongsberg Group in 1982 from Philips, where he was a sales executive.

Gerry Richings has been appointed director of training at BIS Applied Systems. For the last five years he has been responsible for regional development at BIS, establishing two new offices during this time.



Appointed product manager, software tools, at Computer Technology, Sandra Marks (above) will be based at Hemel Hempstead. She previously worked for Data-solve education division as a marketing executive in London.

Brian Manley, managing director of MEL, the Philips UK defence and avionics company, and managing director of the Philips Systems Group, has been appointed to the board of Philips Electronics and Associated Industries. The appointment gives him responsibility for Pye Telecommunications and Philips Research Laboratories.

Winner of the Langton/HIM IT Year award, Ivan Newman, of Burroughs Machines City branch, received his prize, an ICL personal computer, at the prize-giving at the ICL offices in London. The theme was Managing the Office in 1992. Second prize, a BBC Acorn computer, went to Michael Hird, of Glaxo Holdings; and third prize, a Sinclair Spectrum micro, was awarded to Ian Andrews, of Smith International (North Sea).

Newbury Data Recording has promoted Joe Osborne from Cambridge area sales manager to Southern region sales manager. He joined the company from Flexidata as a service engineer in 1974.

Dave Rusken has been appointed director of TLR Computer Consultants and TLR Software. He joined the group at the beginning of last year as a senior consultant.

Cotswold Computer Services has appointed Allister Morris as sales representative. He was previously with IIT Business Systems.

The Bracknell division of Ferranti Computer Systems has appointed Commander Robert Forsyth as naval sales manager. He has been a senior sales executive with the company's naval sales team for the last 20 months.



Atari Home Computers Division announces the appointment of the following: Peter Hradek (left), 35, for the Royal Corps of Signals. Martin Walker, second joins as product marketing manager, having worked over Garard as chief electronic engineer in the RE-1 laboratory. David Dawson (second left), 20, joins as Harris Systems as marketing support manager. Michael Wilding (right), 33, who joins as software Southern technical representative.

Norrie Hill, the Camberley-based CAD company, has named Bill White as marketing manager. He was previously in sales and marketing at Hewlett-Packard, and before that with Sinclair Radionic.

Bob Bettsworth has re-joined International group as managing director of its associated software house Fi-Cord Software. He started his career in software with Fi-Cord and later became a partner with an independent software house.

Lipman Management Resources has appointed Frank Swift customer services manager. He was previously applications support manager at Grand Metropolitan Information Services.

Exxon Office Systems has appointed Alwynne Sinclair as marketing manager, covering the West End of London and the Western Home Counties. He was previously with IBM as a salesman for its office products, joining Exxon Office Systems as a salesman in 1980.



Technical director at Enroute Systems is to be Martin Reynolds (above) who is 28. He joins from Inner Product.

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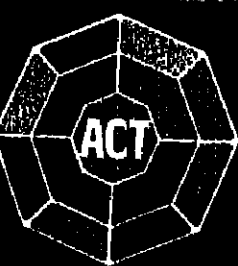
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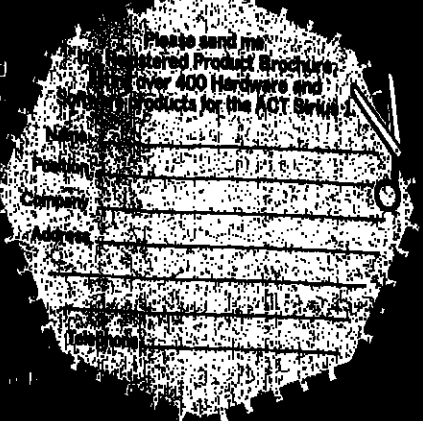
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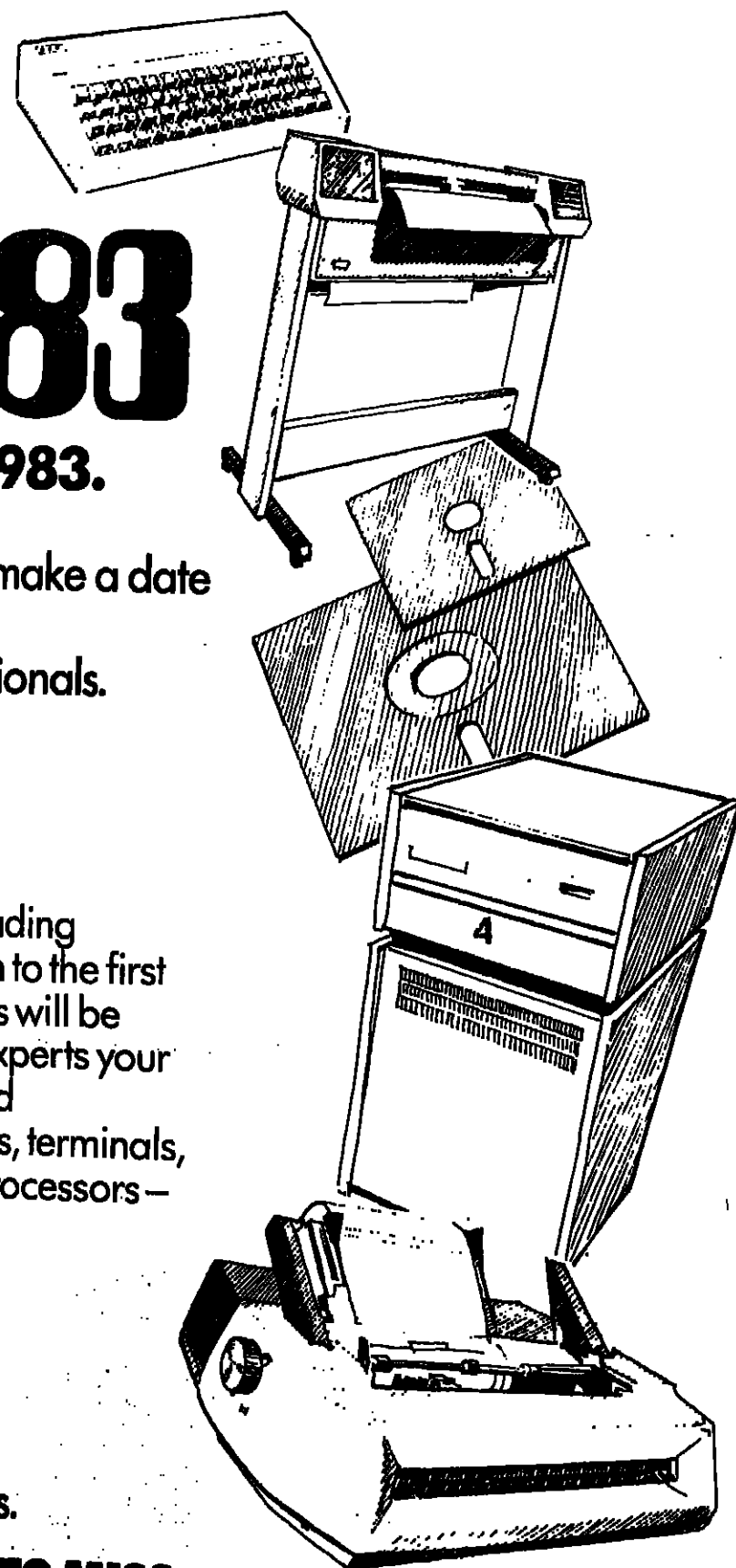
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COMPEC EUROPE PREVIEW

The European market is becoming increasingly important for Japanese and US manufacturers in information technology. The European Community does not want to remain an idle spectator and has launched its own initiative into research and development called Esprit.

An interview with Christopher Layton, one of the driving forces behind Esprit, appears on this page together with an examination of the CAD/CAM market. The next pages concentrate on the broader market and Compec Europe which starts next week at the Centre International Rogier in Brussels.

Europe responds to the Japanese challenge

The European information technology market will be boosted by the announcement of the EECs Esprit programme. Boris Sedacca talks to Christopher Layton, an EEC consultant about the programme

ACTION by the European Community to promote the community's computer and telecommunications industries has begun to gather momentum with the launch of the European Strategic Programme for Research in Information Technology (Esprit).

In the UK, the British government has set up the Alvey Committee which has called for a UK research and development programme in response to Japan's ambitious "Fifth Generation" computer project.

Alvey concentrates on information processing whereas Esprit addresses the whole area of office automation and flexible manufacturing.

While research and development have been the initial focus of Esprit, it is now clear that the programme forms part of a broader strategic plan for market development of the European electronics and information technology industries.

The European Commission is

currently reflecting on the broader strategic task for a European response to the American and Japanese challenge, and from the start this included the development of a European Commission, a position which placed him one level down from Industry Commissioner Viscount Davignon.

Layton, who spent 10 years working for the EEC, is still a highly placed consultant there. In an interview with Computer Weekly, Layton said: "This will entail a lot of fresh thinking on the part of the Community. The aim is to mobilise the marketplace more effectively, by means of large-scale networks, for example."

"However, Esprit is the key to the stage at present and the rest are reflections. The full Esprit programme should be going to the council any time now and should be announced in the middle of May. One billion units of account will come from the Community and will be matched by another

billion from industry (around £1.2 billion in total).

"It was agreed that Community expenditure should be matched by an equivalent industrial expenditure. This is different from the Alvey proposals where up to 90% of some expenditures are to come from the government. The Commission takes the view that if industry is not prepared to put money in, then it cannot give proper priority to the project."

"Industry was reluctant to participate initially, but there has been a fundamental change in attitudes over the last three years by the large European companies which now recognise the threat they face."

"Philips has taken the lead in many ways because it does not have a rich government to subsidise its home market. The company's chairman has stated in the past: 'If we do not combine now, we shall cease to be among the first rank industrial nations'."

Layton will be one of the key speakers at a forthcoming conference

organised by the Policy Forecasting Unit entitled "Fifth Generation of Computers" on 25 May at the Institute of Chartered Accountants. The conference will examine the Japanese challenge and the US response to it.

"The Japanese have proved they can take away US dominance in specific sectors of information technology where they have pushed out whole ranges of products," says Layton.

The first part of the conference will examine the nature of the challenge, while the second part will concentrate on specific programmes. Other speakers will also include consultant Dr Ian MacKintosh, Dr Horst Huenke, manager for the Esprit pilot projects at the EEC, Alastair MacDonald, undersecretary of the Information

Technology division at the Department of Industry, and Clive Sinclair.

IBM UK development director John Fairclough will also speak. "As the largest European computer manufacturer, we felt it was right to give the company the opportunity to state its position," explains Layton.

"IBM at least of all needs government subsidy on research and development. Nevertheless it is a large employer in Europe, and it is an important question whether it will be prepared to share its research and development with other companies."

"The reason we need Esprit is that quite obviously, individual

national projects have failed. Esprit is a great test case for the Community as it will herald the new industrial revolution."

"Information processing is seen by the Commission as a key growth area for the Community as it shifts away from agricultural issues, and within information processing, Esprit is the top priority to get through."

"However, the Commission has long said that there must be an overall strategy for Europe, including the development of markets. But market creation does not necessarily involve large expenditures because that is when incomes begin to be generated," Layton concluded.



LAYTON . . . "The aim is to mobilise the marketplace more effectively."

CAD can be wonderful but too few know it

A EUROPEAN computer market forecast by International Data Corporation (IDC) clearly indicates that at present there is a low usage of Computer Aided Design/Computer Aided Manufacturing (CAD/CAM) among manufacturers, even in those industries most likely to benefit from its introduction.

The table lists the five most likely manufacturing industry sectors to benefit from CAD/CAM usage and shows the percentage usage in each industry. Although the sample sizes are small, the results show that only 16% of companies in the engineering and car and aerospace industries currently use such systems.

Furthermore there is a tendency for such users to be larger companies. Out of 18 CAD/CAM users, 13 of them (72%) employed more than 500 people.

These results correspond closely to recent government studies on the use of CAD/CAM in industry. These studies also noted a generally low usage and a tendency towards larger companies, despite the availability of CAD/CAM systems which can run on microcomputers and which are within the budget of medium sized companies.

The problem according to IDC is making the smaller companies aware of the advantages CAD/CAM can offer them.

One government reports states: "Any difficulty in implementation concerns not the inherent technical capabilities of the system but rather the information gap that has to be bridged in order to make companies aware of what CAD/CAM systems can offer and the effort required to tailor commercial systems to firms' individual requirements."

Hence there is a clear challenge and opportunity here for vendors of CAD/CAM systems to educate and inform prospective clients about the advantages of their particular product and to tailor those systems to user requirements, concludes IDC.

The cost of minicomputer based CAD systems range from \$125,000 to \$600,000. Added OEM value typically includes the design and manufacture of tablets, digitisers, plotters, graphics terminals, workstation and peripheral controllers and software.

Hardware accounts for 90% of the cost of a CAD system, software only 10%. Workstation peripherals, including terminals and tablets, represent the largest share of hardware costs, followed by system-level peripherals like disc and tape drives, printers, plotters and digitisers. The processor, including main memory, represents the smallest portion of hardware costs, says IDC.

The rapid growth in the CAD market has been fuelled by the development of the three-dimensional modelling software required for mechanical design applications. This market has been slower to develop partly because of the complex calculations required to manipulate 3D figures on the screen.

However, the design economies associated with CAD systems for mechanical design appear to be much greater, and the total market potential much larger, than for electronic design applications.

Processing speed and memory capacity are the major factors considered by users when selecting CAD systems. And 32-bit processors are attractive as they allow the system to define the coordinates of points on the screen with high precision, and to perform complex rotational calculations without losing accuracy. They can also support the heavy computational throughput required for these calculations.

CAD suppliers generally develop standard software packages for use with their systems; little or no customisation is done for individual customers, says IDC.

Proportion of CAD/CAM users in different manufacturing industries.

Industry	No. in sample	CAD/CAM users	%
Chemicals	17	1	6
Fabricated metal	14	3	21
Mechanical machinery	39	6	15
Electronic machinery	22	5	23
Transportation equipment	10	1	10
Sub total	102	16	16
Other	87	2	2
TOTAL	189	18	9

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Speed-up of computer product sales this year in West Europe

John Aczel discerns a sharp upward trend in the demand for systems

TABLE 1: BRITISH IMPORTS OF PERIPHERAL EQUIPMENT (BY MAIN SUPPLIERS)

	Jan-June 1982	Jan-June 1981
Belgium-Luxembourg	1,122	9,559
Canada	2,701	5,742
Denmark	2,701	3,362
France	17,879	36,565
Germany (West)	26,096	54,081
Ireland	7,186	17,760
Italy	15,007	29,117
Japan	12,896	34,012
Netherlands	14,345	29,772
Spain	3,652	7,512
Sweden	7,104	20,629
US	201,211	416,000

TABLE 3: BRITISH EXPORTS OF TOTAL PERIPHERAL EQUIPMENT (BY MAIN MARKETS)

	Jan-June 1982	Jan-June 1981
Belgium-Luxembourg	6,859	13,368
France	2,761	5,742
Germany (West)	40,092	91,014
Italy	21,463	46,336
Netherlands	8,226	18,000
Norway	3,411	7,212
Spain	6,705	15,599
Sweden	9,008	18,008
Switzerland	8,791	18,008
UK	8,253	18,059
US	7,618	18,159
	6,024	12,131

TABLE 5: GERMAN IMPORTS OF INPUT-OUTPUT UNITS BY MAIN SUPPLIERS (BY VALUE)

	Jan-Dec 1982	Jan-Dec 1981
Argentina	0,000	0,000
Austria	5,045	4,173
Belgium-Luxembourg	2,925	1,103
France	10,044	12,526
Ireland	13,504	9,283
Italy	32,379	34,591
Japan	21,450	11,501
Netherlands	2,831	5,252
Sweden	23,006	41,497
Switzerland	63,398	63,345
US	128,176	118,572

TABLE 6: GERMAN IMPORTS OF INPUT-OUTPUT UNITS BY MAIN SUPPLIERS (BY VOLUME)

	Jan-Dec 1982	Jan-Dec 1981
Argentina	No.	No.
Austria	1,215	639
Belgium-Luxembourg	4,133	3,089
France	3,417	4,305
Ireland	8,589	6,124
Italy	11,856	6,135
Japan	32,399	27,784
Netherlands	90,521	47,964
Sweden	5,228	3,303
Switzerland	20,763	9,838
US	62,107	50,440
	129,992	134,630

TABLE 7: GERMAN EXPORTS OF INPUT-OUTPUT UNITS BY MAIN SUPPLIERS (BY VALUE)

	Jan-Dec 1982	Jan-Dec 1981
Austria	9,119	9,369
Belgium-Luxembourg	6,427	7,709
Denmark	3,124	4,399
France	2,106	2,061
Germany (West)	17,884	17,424
Italy	13,305	17,235
Netherlands	8,188	9,085
Norway	1,477	1,846
Saudi Arabia	2,126	910
Spain	2,340	3,564
Sweden	6,077	6,246
Switzerland	5,164	5,475
UK	16,359	15,984
US	15,701	8,772

TABLE 8: GERMAN EXPORTS OF INPUT-OUTPUT UNITS BY MAIN SUPPLIERS (BY VOLUME)

	Jan-Dec 1982	Jan-Dec 1981
Austria	No.	No.
Belgium-Luxembourg	6,121	6,517
Denmark	3,155	3,074
France	2,373	1,272
Germany (West)	26,178	15,014
Italy	15,343	12,251
Netherlands	15,522	8,096
Norway	436	326
Saudi Arabia	2,014	3,500
Spain	6,323	4,004
Sweden	5,192	3,806
Switzerland	12,212	10,462
UK	23,321	17,042
US	17,950	8,781

SALES of computer products have remained at a high level during the past 12 months and, for computer systems and peripheral equipment, the trend in demand has been sharply upward in most European countries during 1982. In this sector, the effects of the general economic recession have been limited, and, for 1983, a further speed up in the market for computers is expected, especially for the smaller systems and microcomputers.

According to estimates published in the Mackintosh Yearbook, the overall market in Western Europe for complete systems and peripheral products amounted to over £20,000 million (about £13,000 million) in 1982. Within that region, the UK, France and West Germany have accounted for a significant share of the total, representing about 50% in value terms.

The rate of growth in the various markets has varied, but the growth in the peripheral sector has been particularly rapid in most countries. And they forecast that overall demand will rise by at least 10% at constant prices, without taking into account the impact of inflation. Thus, in the current year, the overall market size could be at least £22,000 million (about £15,000 million), though this figure may be on the low side.

These forecasts, however, should be treated with some care and may be quite conservative. For one thing, Mackintosh forecasts tend to be published in constant prices, and, if one builds in a factor for inflation of at least 5% or 6%, this growth will be nearer 15% at current prices.

Mackintosh usually errs on the conservative side and, on present trends, it is likely that an average rate of expansion of over 20% at current prices will be recorded in most of the European markets. The three major markets, France, the UK and West Germany, will be considered in turn, while some comments will also be devoted to the Netherlands. The Dutch market, relatively small, has been growing particularly fast in some sectors. It is quite a sophisticated one and has a number of special features.

In this analysis, several provisos should be made with regard to the statistical information. Some of the figures are not strictly comparable, as differences in definitions and in classifications do occur in the trade statistics for each country.

Another factor of some importance concerns movements in exchange rates, and, though all the relevant statistics have been converted into sterling to make the survey easier to understand, this factor can distort comparisons to some degree.

In the official statistics, there are also problems involved in the time span for the actual trade flows, so

that exports from one country do not always match up with the imports from another.

On the whole, however, the figures contained in this survey are the best available at the moment, and should be of considerable interest to marketing executives who are keen to assess the growth for their products in various European countries.

Naturally, the computer industry is a fast moving one, and conditions can change rapidly within a short time, so that any trends in sales have to be treated with some caution.

The main emphasis will be on peripheral products which have been of particular significance in most of the European countries. As a rough estimate, peripheral products accounted for about 65% of the total market, with input and output units being of particular importance. In the official statistics, the classification for input and output units covers a wide range of products, such as printers, visual display units, terminals and

imports for peripheral units amounted to over £700 million in 1982, of which a significant proportion was represented by input and output units and storage devices of various kinds.

Competition has been quite fierce in the peripheral sector, and, according to the latest estimates, prices have dropped to below £600 per unit in 1982, as against nearly £700 in the previous year. Even so, the US has continued to maintain its dominance in this market, and for the peripheral sector as a whole, accounted for about 60% of the total.

This share, however, has been challenged by other suppliers, as various countries have managed to increase their market position over the past 12 months. In particular, imports from West Germany have been quite strong and now account for nearly 10% of total peripheral imports. There has also been a big jump in imports from Ireland, and its sales have reached £18 million during the past year.

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Margaret Park takes a look at what the 13-strong UK contingent has in store for visitors to Compec Europe next week



Brian Jackson, of Future Computers, with his star exhibit for Compec Europe, the FX20 personal computer.

IBM 'thinkalike' is star of Future at Brussels exhibition

A 13-STRONG contingent is crossing the water from the UK under the auspices of the Business Equipment Trade Association, for the third Compec Europe. A spin-off from the annual London Compec, it takes place at the Centre International Rogier in Brussels from May 1-3.

One of the British exhibitors is Future Computers, a two-year-old micro systems house based in Purley, Surrey, and managing director Brian Jackson said his company's star exhibit would be the new FX20 personal computer which he described enthusiastically as an IBM PC 'thinkalike'.

Distribution of the FX20 has

not begun yet, and production at the Thorn EMI plant, spawning ground also for Sinclair's Spectrum, is just underway. But according to Jackson the FX20, which he describes purely in terms of its advantages over its more famous IBM rival, has a lot going for it.

"It's much cheaper than the IBM PC at £1,875," said Jackson, "and has twice the speed and twice the memory and disc capacity with two 800K floppy discs."

The FX20 will also arrive with its own local area network, will plug in IBM bus cards and run software written for the PC.

Future Computers' machine was launched at the Which Computer? Show earlier this year and Jackson said the company had made an effort to design a computer specifically for the European business market.

Future Computers, which produces other products in the FX range such as a terminal and a networking processor, already has European distributors but looks on Compec Europe as a shop window for those not yet exposed to its products.

Plessey Microsystems is in the BETA party too, showing its range of semiconductor memories and bubble memories, plus two micros.

One of the micros, System 19, is well established in the UK, and has British Telecom as its biggest user. The other was partially launched at Compec UK last autumn as a 68000 board and memory. Known as the System 68, this machine will be presented to the US market in Brussels with the addition of input/output ports and Winchester disc storage up to 140 megabytes.

System 68 runs under the Unix operating system. System 19 on the other hand is based on multiple Z80s, runs under CP/M and uses CPNOS, an internal communications software package. British Telecom uses these in a number of applications - in directory enquiries, for example.

This is Plessey Microsystems' first visit to Compec Europe and technical advisor Alan North explained the decision to exhibit this year as part of a recent effort to sell direct to Europe.

Pericom Data Systems from Milton Keynes will arrive with its 7800 range of VDUs which have been selling since January 1982. The range offers high resolution graphics control and includes a new micro edition of the 7800 which, according to Steve Williams, one of the sales team, can be upgraded to become either a micro terminal, a graphics terminal or a Prestel receiver.

The 7800 range is manufactured by Pericom itself in Milton Keynes. The seven-year-old company has been to Compec Europe before but does all its Continental selling through appointed distributors.

Also in the UK team is Newcastle's Real Time Systems, the sole UK distributor for a US software company called Whitesmith. Whitesmith produces compilers in the language C which will run native on the Digital Equipment's Vax and PDP/11 under any of DEC's operating systems plus Unix versions 6 and 7.

Massachusetts-based Whitesmith has also produced its own complete rewrite of Unix called Idris which runs on the 8080 and 68000 processors and on the PDP/11. The next release of software, says Real Time, should see Idris available for Vax machines. At Compec Europe Real Time Systems will be pushing the C pro-

ducts rather than Idris. Effort is being conserved, said technical manager Alan Johnson, to promote Idris in the UK first.

"We have to get people used to an operating system that doesn't end with the letters 'ix'," he said.

Real Time, whose research and development has recently moved to the Isle of Man, has sold in Europe already through one distributor. But the company wants to step up European activity to the point where business will support Continental offices. The plan so far is for one in Scandinavia and another in Central Europe, probably Germany.

Another in the BETA group is Radan Computational from Bath, a CAD/CAM company. Radan will demonstrate its computer-aided draughting system Radraft, which is a two-dimensional, low-cost modular system that can be built up from one workstation to something more complex.

Also on the stand will be Radpunch, a system that prepares and verifies numerically controlled

COMPEC EUROPE '83

tapes for operating manufacturing tools. This, according to Radan's Tony Billet, is used in general engineering applications.

This is Radan's first trip to Compec Europe and, like Plessey Microsystems, the visit is part of a plan to hit the European market this year.

"We have been looking carefully at Europe," said Billet, "and have opened two German offices this year - one near Cologne and one near Hamburg."

The exhibition circuit around Europe is hotting up. A large number of exhibitors in Brussels will have come almost straight from the Hannover Fair, which ended only last week.

Commodore will have put in time at both. So will Hewlett Packard, which says all its departments will be taking part in the Brussels show. On the stand will be the larger computers, high resolution plotters, the HP personal computer, logic and protocol analysers and a range of software.

"More or less all our products will be there," said a spokeswoman from Hewlett Packard's Brussels office.

Historically Compec is largely dedicated to peripherals, so there will be a veritable swarm of companies showing every extra and add-on imaginable.

Calcomp says it will take its electrostatic plotter, digitiser and graphics display.

CACI, the giant multinational software house and consultancy, unveiling a secret present as the Analysts' Workbench. Details, according to Urban Vanden Boesche, manager of CACI's Belgian operation, are still under wraps, but the product is designed to combat the age-old DP problem of devoting 70% of budgets to maintenance and repair, while only 30% goes on development.

CACI says the solution is in the hands of systems analysts. CACI will also be showing a range of its software communications facilities for micros.

"Most of our customers have more than 100 data processing staff," said Vanden Boesche, "and the sort of difficulties they encounter these days are brought about by the problem of identifying hardware needs."

Lasagne code is tastier than spaghetti code...

... but neither method is the cordon bleu, says Joe Celko

THE structured programming revolution taught that the use of the GOTO statement would lead to code that resembled a plate of spaghetti.

The only problem is that in finding this trouble spot in the old way, the structured programmers fail to see a trouble spot in the new way.

In place of the tangled web of labels and GOTO statements, structured programming converts the layer after layer of nested selection statements. This "lasagne code" is better than the "spaghetti code" of the past, but neither is terrific.

Selection statements come in several flavours, the IF-THEN flavour, the IF-THEN-ELSE flavour, and the CASE statement. The first two use a Boolean expression as their control and the latter uses an integer expression.

The IF-THEN and IF-THEN-ELSE statements are very much alike, but the IF-THEN-ELSE is probably better, if you can use NULL statement, "No Op" or "Do Nothing" in your programming language.

The use of the NULL statement allows the programmer to write the equivalent of an IF-THEN using IF-THEN-ELSE NULL. This makes you think about the ELSE clause; the program does not simply fall through to the next statement.

The NULL can be replaced with error messages while debugging, or real code when you see what you forgot. This is where a lot of exception handling and error correction is done in a program.

This approach also solves the "dangling else" problem. Consider this piece of code:

```
IF p THEN IF q THEN stmt1
ELSE stmt2;
```

It could be read as either:

```
IF p THEN BEGIN IF q THEN stmt1
END
ELSE stmt2;
```

Also, I took the second approach, and most other programming languages followed their convention that the -ELSE associates with the most recent -THEN.

The final advantage is that the program is divided into very clear modules of code. The system can build overlays for the -THEN and -ELSE clauses, since they will never be active at the same time.

The CASE statement is a fairly new tool, invented by C. A. R. Hoare. PL/I and Pascal support it, but most programming languages do not. The basic case statement picks one and only one statement from a numbered list and executes it while ignoring the rest of the list.

The control is an integer value and some provision is made for an integer value which is not an index in the list. Some implementations let the execution fall through to the next statement and some have an explicit default statement in the list.

It is really too bad that the CASE statement is so rare. The lack of it forces the programmer to write chains of nested IF-THEN-ELSE statements, like this:

```
IF (p=1) THEN stmt1
ELSE IF (p=2) THEN stmt2
ELSE IF (p=3) THEN stmt3
ELSE IF (p=4) THEN stmt4
ELSE ...
```

Instead of the nice clear case version:

```
CASE (p) OF
1: stmt1;
2: stmt2;
3: stmt3;
4: stmt4;
```

In trying to pull off the layers of lasagne, you often must trade deep nesting for complex Boolean expressions. This can be good and bad.

The bad part is that people have a hard time with Boolean algebra - 20% or more of all bugs in coding are in Boolean expressions. Only a mathematician or a lawyer can be comfortable with complex Booleans. The good part is that compilers can optimise Boolean expressions and could give you a gain in speed.

It is clear that the clauses of an IF-THEN-ELSE statement can be swapped, if the Boolean control is negated. That is:

```
IF p THEN stmt1 ELSE stmt2;
is equivalent to:
IF (NOT p) THEN stmt2 ELSE stmt1;
```

I would like to conjecture that there is a normal, expected arrangement for a human being to read an IF-THEN-ELSE state-

ment, in spite of the equivalence. The most likely to be executed code should be in the -THEN clause and the exceptional or error handling code should be in the -ELSE clause. Try reading a program where the opposite arrangement was used and see if you don't agree.

Patching a program in a card-input batch system can lead to some strange code. Consider the two cards next to each other in the deck:

```
IF p THEN stmt1 ELSE stmt2;
IF q THEN stmt1 ELSE stmt2;
```

The reason they are there is that the programmer duplicated the first card, and re-punched only the columns he needed to make the second card. He could have punched a single card reading:

```
IF (p OR q) THEN stmt1 ELSE stmt2;
```

He is a two-finger typist and a little lazy, so he wanted to get his patch in fast and leave. It would have been better to re-punch the whole card, since both the users and the compiler would have less of a time with it.

Other tricks, taken from the McCarthy operators in LISP, are

also used by some optimising compilers. This schema:

```
IF p
THEN IF q
ELSE stmt1
ELSE stmt2
```

is equivalent to:

```
IF (p AND q)
THEN stmt1
ELSE stmt2;
```

and this schema:

```
IF p
THEN stmt1
ELSE IF q
THEN stmt1
ELSE stmt2;
```

These schemas are sometimes hard to see actual practice because one of the clauses is an implicit NULL statement hidden in an IF-THEN.

Once the levels of nesting have been flattened out a bit, then the expression can be reduced by using Boolean algebra and a little commonsense.

The Boolean algebra can be found in a book. The com-

monsense has to come from knowledge of the code. For example, knowing if two conditions include or exclude each other can allow them to be combined or allow one to be removed.

The best approach to really tricky logic is to use a decision table. This has become a lost art, but it needs to be revived. Once the decision table is set up, the programmer can optimise it and check it for contradiction and redundancy with a decision table program.

The quick way to convert the table to code is to pick one condition and use it as the control expression in an IF-THEN-ELSE statement. The two branches of the IF-THEN-ELSE statement are sub-decision tables made up of the conditions and actions for which that condition is TRUE and FALSE respectively.

This procedure is continued for each sub-table until the entire decision table has been converted in a nest of IF-THEN-ELSE statements.

The problem with this approach is that there are many ways to generate a program from a single decision table. This is a blessing in one way because it means that a decision table represents all possible valid programs. By having the decision table in the program documentation, we can re-structure the program should anything change without having to mess with horrible nested IF-THEN-ELSE statements.

The bad part is that the number of possible generated statements is huge. If there are no conditions, then you have a possible way to pick the highest level control expression. Each of the two branches of the highest level control expression has (n-1) possible control expressions. And so on and so on.

For two conditions this is simply two possible arrangements and three conditions have 12 possible arrangements. But four conditions have 576 possible arrangements. It gets even worse as n gets bigger.

There are procedures which will provide good results most, but not all, of the time. The idea of them is pick a pivot condition which has the smallest number of "don't care" entries in it.

The generated code will use the smallest number of Boolean expressions to arrive at an action. The algorithms will not generate

nested IF-THEN-ELSE statements which use the same control condition at each level nesting. A human being would tend to write code that way just because it would look symmetric and pleasing to the eye. Once the code has been generated, some of the other transforms can be applied to flatten it out further.

As a rule of thumb, a human being can mentally handle only five things at one time. Try and keep the lasagne down to three or fewer levels.

(a) Here is a simple decision table, where 0 means "don't care", 1 means "TRUE" and -1 means "FALSE", with conditions C1, C2 and C3, and outcomes of statements S1, S2 and S3. It can be converted to code by inspection.

	C1	C2	C3	
	+1	-1	0	1
C2:	-1	0	+1	+1
C3:	0	0	+1	-1
	S1	S2	S3	S4

(b) It first pivots on condition C2 to become:

THEN	C1:			
	C3:	0	+1	-1
		S3	S4	
ELSE	C1:	+1	-1	
	C3:	0	0	0
		S1	S2	

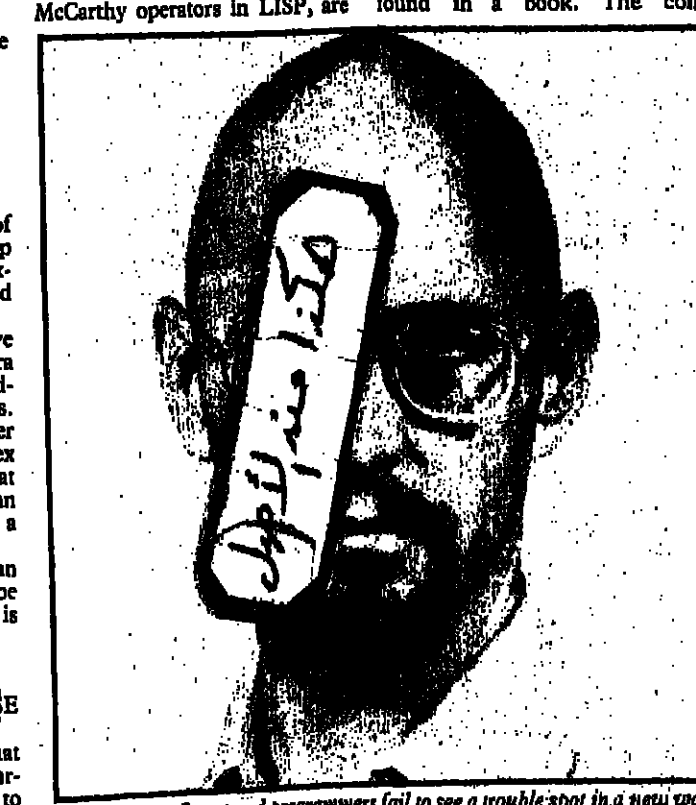
(c) and finally becomes:

```
IF C2
THEN IF C3 THEN S3 ELSE S4
ELSE IF C1 THEN S1 ELSE S2;
```

A human being might have generated this "lasagne" code from the same program specification. The reason that a human being would turn out such code is that it has a nice symmetry and the conditions appear in the order that they were identified.

That is, C1 is at the first level, C2 is at the second level and C3 is at the third level. Would you see that these two blocks of code are equivalent by inspection?

```
IF C1
THEN IF C2
THEN IF C3 THEN S3 ELSE S4
ELSE S1
ELSE IF C2
THEN IF C3 THEN S3 ELSE S4
ELSE S2.
```



CELKO... Structured programmers fail to see a trouble spot in a new way.

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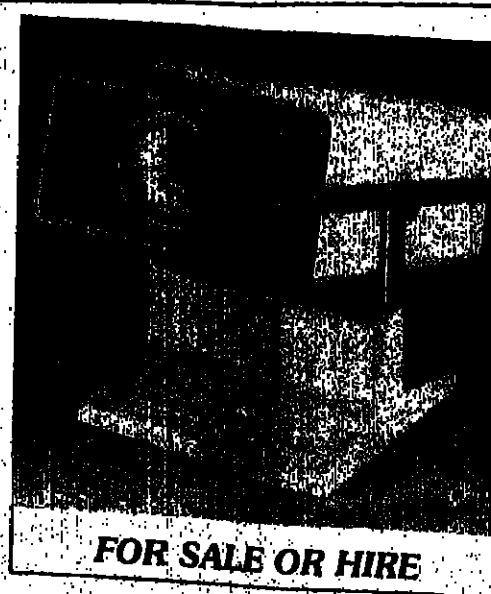
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Experts can't decide if the future's rosy or Orwellian

Over 700 people heard professionals' opinions at a symposium on computer culture. Howard Karten reports

ISSUES of privacy, potential mass unemployment, the future of intellectuals, and other computer-related topics were the order of the day in New York early this month, as some of the most widely-known computer experts and specialists from several disciplines gathered to discuss the effect of computers. In the process, the audience was treated to several rosy outlooks, some Orwellian nightmares, and a squabbling panel of artificial intelligences, complete with name calling and considerations of whether electric blanket controls can be said to think.

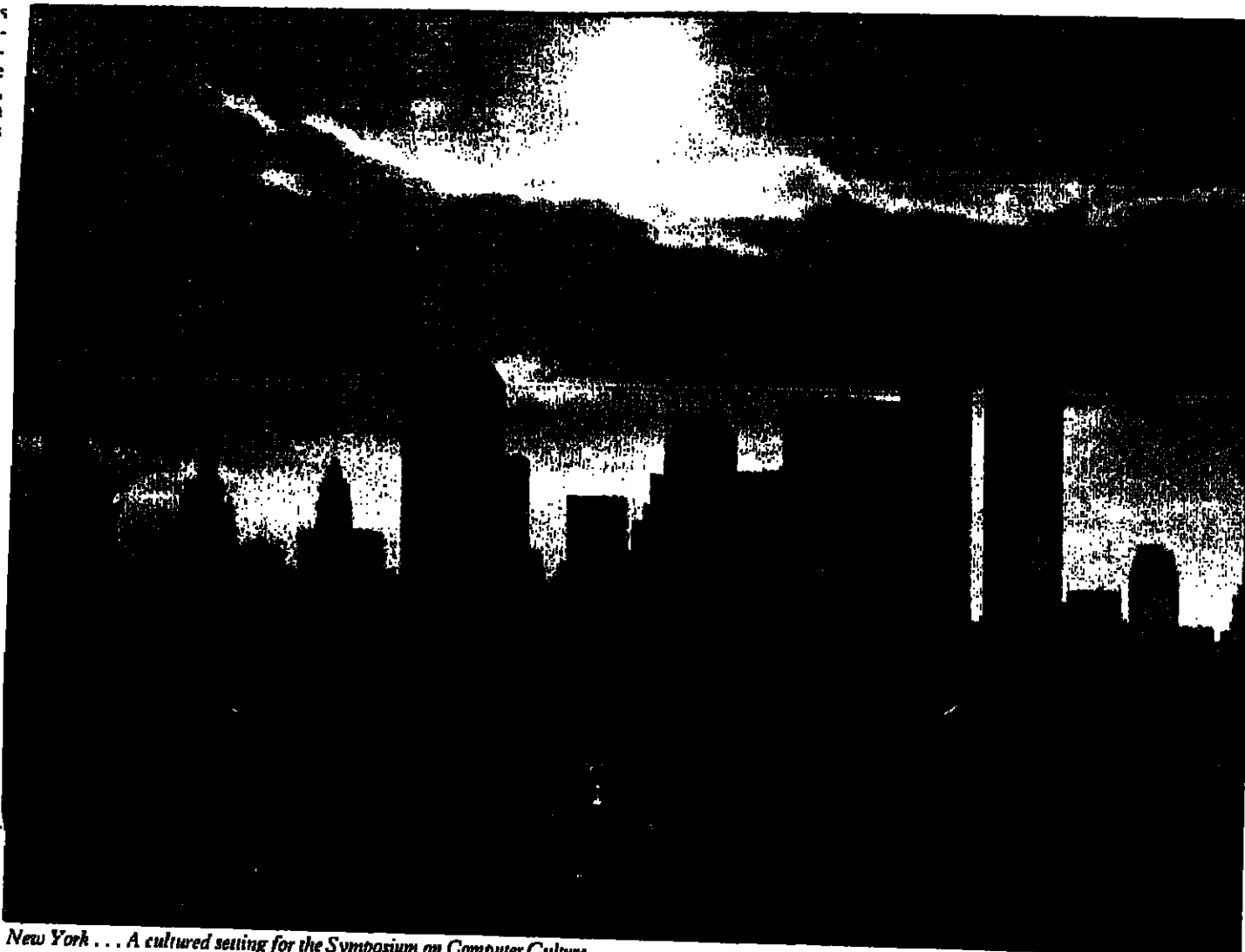
More than 700 people turned out to hear a variety of experts speak at the Symposium on Computer Culture sponsored by the New York Academy of Sciences, a non-profit making educational and cultural organisation. The academy's membership consists of more than 45,000 scientists from the US and 84 other countries, representing every scientific discipline.

Harley Shaiken, a Massachusetts Institute of Technology research fellow in the MIT program in Science, Technology and Society and adviser on automation policy to several public, private and labour organisations, observed that defining productivity as output per unit of input was too restrictive. Rather, he said, productivity should be defined as the opportunity to be productive for all who want to work.

Workplace automation can be viewed as a continuum, Shaiken believes. At one end is what he called "electronic Taylorism," after F. W. Taylor, the father of time and motion studies circa 1911. Electronic Taylorism consists of centralised command of the workplace (e.g. factory or shop floor), deskilling of workers, and increased machine pacing of workers.

At the other end are what Shaiken called human-centred systems, which are decentralised, take advantage of worker creativity, and feature optimal interaction of people and computers. Irrespective of control.

Since engineers are biased in favour of control and predictability,



New York... A cultured setting for the Symposium on Computer Culture.

ity, electronic Taylorism is not surprisingly the favoured method of management.

The not-so-obvious cost, however, is not the lost abilities of skilled workers, but increased difficulty in acquiring those skills, since eventually there is going to be no one to become apprenticed to. Removing a worker's skill and judgment from a job leads to an erosion of the quality of work life, Shaiken believes.

Fortunately, the "Taylorite era" is at an end, according to Columbia University (New York)

Professor of Industrial Engineering and UN consultant Seymour Melman. Workplace democracy is a requirement for productivity growth, Melman told delegates.

Nor will blue collar workers be the only ones to be affected. "Knowledge technology," in the form of artificially-intelligent expert systems, will soon begin to affect professionals such as doctors and lawyers.

The list of computer-based expert systems is growing almost daily, according to Stanford University's Edward Feigenbaum, pioneer in artificial intelligence and computer science. Feigenbaum, who is chairman of the Stanford Computer Science Department and author of several books in the field, observed that some current efforts in artificial intelligence are driven by the demands placed on knowledge workers in fields which are so vast, and so complex, that "job excellence requires a scope of knowledge exceeding reasonable demands on human training and continuing education."

In these fields, good problem solving requires several experts since no one person has all the needed expertise. Medicine and engineering are good examples, and in some areas, well-known expert systems, such as the Mycin diagnostic system at Stanford, have performed as well as or better than humans.

The development of expert systems is currently being impeded by the lack of really good, high-speed specialised computers. However, several countries are working to remedy this situation. Examples are the work on intelligent knowledge-based systems (IBKS) in the UK, the KIPS (Knowledge Information Processing Systems) in Japan, and work

on an advanced artificial intelligent architectures (AAIS) currently going on in the US.

Pamela McCorduck, a journalist, science writer, and Columbia University (New York) lecturer, observed that no one truly knows whether the advent of expert systems will herald a new golden age or something more sinister. In the past, mechanical amplifications of human abilities, such as electrification and motor cars have brought about wholly unforeseeable changes, she noted.

On the positive side, the advent of expert systems could make knowledge more democratic, since expert systems - unlike experts themselves - are easily replicated and accessible. Since constructing expert systems inevitably involves extensive interviewing into thought and logical processes of experts, psychologists are sure to learn more about human cognition and how people reason, McCorduck noted.

On the negative side, if knowledge is indeed power, then a monopoly on expert systems could cause an undesirable concentration of power in some hands.

Unlike many symposia on computers, which tend to draw heavily from those involved in the computer industry, this one drew from a broad spectrum of workers. NYAS spokesmen said every state in the US and some 46 foreign countries were represented. Some of the professionals who turned out for the conference were college physicist, law professor, professional negotiator, internist, and many people working in the humanities.

The later group could draw comfort from McCorduck's observation that since human beings are mythmakers, when and if artificial intelligence becomes "super-ad-vanced", there will be an upsurge of interest in magic.

panel discussing artificial intelligence and human thinking was treated to a rare display of academic antagonism. MIT's Marvin Minsky, who earlier in the afternoon delivered an address with the characteristically modest title "Why computer science is more important than anything else", labelled "idiotic" a proposal about artificial intelligence put forth by co-panelist John Searle, a University of California (Berkeley) philosophy professor.

Minsky is highly optimistic about the impact of computers on society and on the ability of humans to duplicate most processes, given complete information about how those processes function, but his scrappy attitude on the panel and later in a Press conference seemed to several of the journalists arrogant and perhaps less than collegial.

One of the points made by Searle was that although it is possible to construct a machine that "appears to think", "many people believe to be demonstrably false the proposition that computers have thought processes."

A good deal of the panel discussion seemed especially abstract and obscure - a university physics professor seated next to this reporter seemed hard-pressed to contain his laughter at the going-on. "It's a delightful fantasy world they're talking about," he noted.

Co-panelist Seymour Papert, creator of the Logo language and a colleague of Minsky's at the MIT Artificial Intelligence Lab, observed that "there will be machines that will be better at your job than you are," such as medicine, picking stocks, or the travel agent business - and that people ought rightly to be frightened about this development.

Proceedings of the symposium will be published as the annals of The New York Academy of Sciences (2 East 63rd Street, New York, NY 10021), around December.

"We will stand in front of our machines in awe and reverence and perhaps a certain amount of fear," she prophesied. There is at least one indication, at least in the US that McCorduck may not be far off the mark - in recent years, astrology has seemed to gain in popularity and number of followers. The audience for an afternoon

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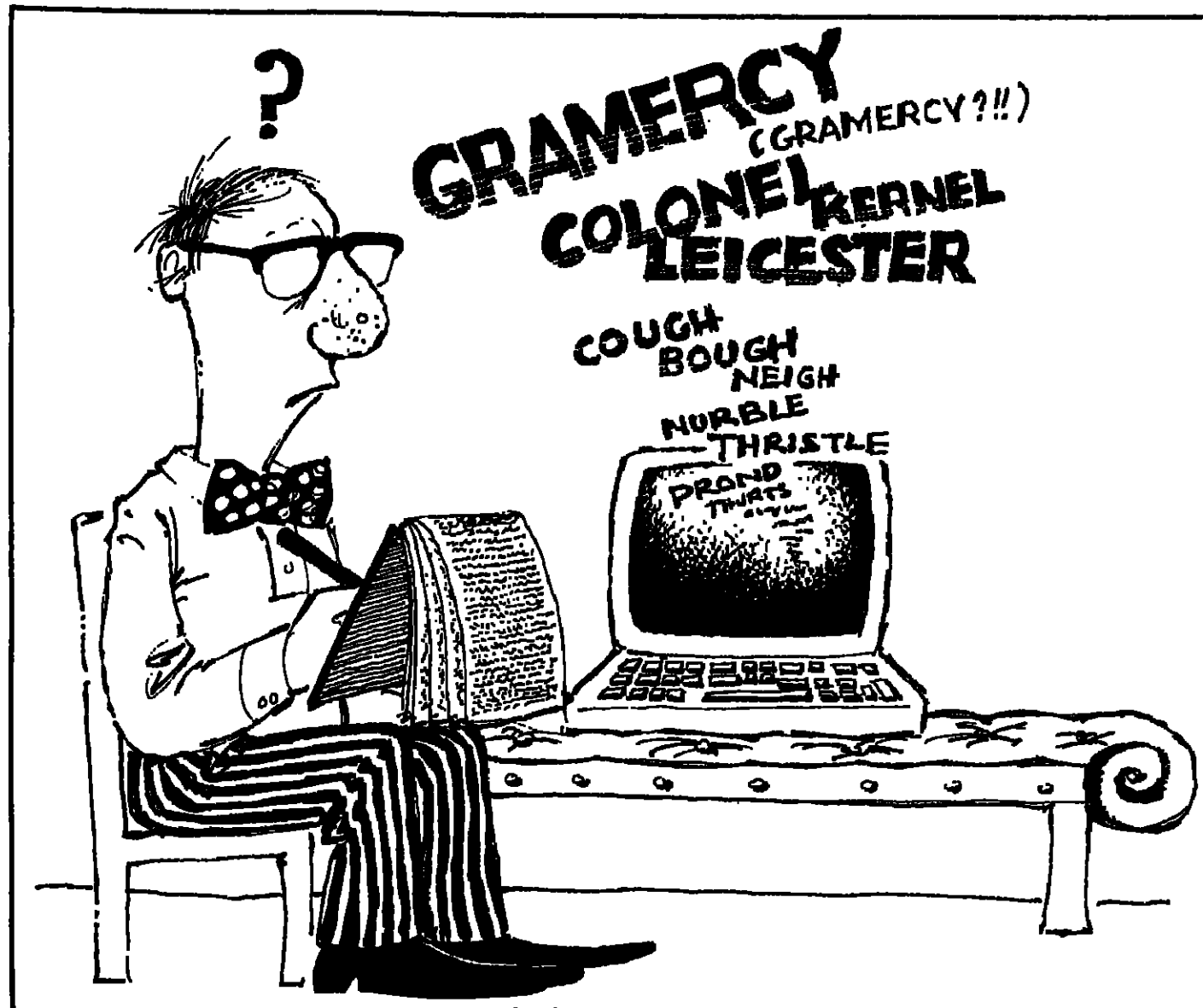
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ARTIFICIAL INTELLIGENCE

Can psychology help computers to understand natural language?

Do you know what "gramercy" means? Or find you can't recall a word you want to describe a particular concept? Aberdeen University's Dr Kenneth Gilhooly outlines a project to apply human psychological processes to research in artificial intelligence.



BOTH artificial intelligence and psychology have a strong interest in natural language processing. The ultimate goal for artificial intelligence research on natural language is to develop a computer system that can act as though it understood natural language input (ideally in spoken form) and produce natural language outputs in spoken or visible form.

The goal for the psychology of language, on the other hand, is to understand how humans carry out their everyday linguistic tasks. Clearly, there is potential for some cross-fertilisation between psychology and artificial language in the language area.

I wish to outline a project involving the computer modelling of human vocabulary abilities; although the main thrust of my work is psychological, it is hoped that it may have implications for artificial intelligence and possibly some practical applications.

Hitherto, artificial intelligence efforts in this area have focused mainly on the large-scale problems of understanding continuous linguistic inputs, usually in limited environments such as "block words".

On the other hand, psychologists have given relatively more attention to the smaller scale problems of how isolated verbal inputs make contact with internal representations and lead ultimately to observable outputs (eg reading a single visually presented word aloud).

As a typical psychologist, my interests in this area have focused on these "micro" questions. However, I believe that these questions will have to be faced eventually by artificial intelligence programs for natural language processing.

If the artificial intelligence solution borrows from studies of human processes, what might it be like? To help answer this question I will briefly review the highlights of human studies in this area.

Many psychologists think that the individual's vocabulary ability is underlain by a "mental lexicon," the entries of which contain in-

formation on word spelling, pronunciation and meaning (as in real dictionaries). Being a "mental" lexicon, however, it cannot be assumed that access to one type of information (eg pronunciation) will guarantee access to other types of information (eg meaning).

An example here might be knowing that "gramercy" is a word and knowing its pronunciation but being unable to retrieve a meaning for it. Another example would be having a concept in mind but being temporarily unable to locate the phonological form of the desired word (ie the "tip-of-the-tongue" phenomenon).

Psychologists have devoted considerable research to questions of access and organisation in the mental lexicon. That there is a real problem here is perhaps indicated by estimates of the size and efficiency of the lexicon.

Reasonably well-educated adults have been estimated to know 75,000 different words and can recognise any one of them in spoken or written form very rapidly; similarly, in speech and writing, appropriate words are generally retrieved at a rapid rate. Since each word is associated with two different output codes (spoken and written) and two corresponding input codes, clearly the amount of information involved is very large.

Clues to the structure and function of the mental lexicon in humans have come from a variety of (mainly) single word tasks presented both in normal literate subjects and to brain damaged patients suffering from a range of language disorders.

The most striking evidence comes from the very specific losses of function seen in certain clinical conditions. For example, some patients display reading errors and difficulties only with long words or with words that have irregular spellings (eg "colonel"); while other patients cannot read aloud function words but can read content words; and still others have reading difficulties, not only with pronounceable non-words (eg "brone") and function words, but also with some of the abstract

content words (eg "concept").

Many other, often surprising, patterns of impairment have also been reported, eg failing to read concrete words while retaining the ability to read abstract words; retention of ability to read irregularly spelled words aloud but with

loss of comprehension of those words. These and other reports of "dissociations" of function are useful sources of evidence concerning the processing subsystems involved in normal reading.

The overall conclusion from

Although there are a number of theories, the question of exactly how information in the mental lexicon is structured and accessed is still open

studies of both brain-damaged and normal subjects is that although information in the mental lexicon on word sounds, spellings and meanings is highly compartmentalised, numerous routes exist between the different forms of information. This variety of intercommunications helps the system cope with loss of some routes brought about by brain damage or disease.

Although there are a number of theories, the question of exactly how information in the mental lexicon is structured and accessed is still an open one. My current research is aimed at this question and involves developing a computer model that will embody a number of ideas in the psychological literature.

I want to see how well the model will cope with a variety of tasks when it has a large and expanding vocabulary. The main task to be tackled initially will be that of single word naming in which a phonological code is to be output given a spelled-out word as input.

A particular point of psychological interest will be whether "dissociating" different parts of the program will produce error patterns similar to those characteristic of various groups of brain-damaged humans. If so, then the underlying theory embodied in the program would be supported.

The organisation of the program will be modular. This will ease program construction and should allow for a variety of functional dissociations when simulating language disorders. Also, the incorporation of new items into the system will be made easier by a modular organisation.

"Content" information pertaining to a given word will be clearly distinguished from "address" information. At least three forms of "content" information will be stored per word, viz spelling, sound (phonology) and meaning.

The three types of information will be located in three different stores. Entry to each store will be via address codes. The address codes will be located in a number of access files.

At present, it is intended that there will be three input access files corresponding to written (graphemic), phonological and internally originating semantic cues. The graphemic input access file, for example, would take a spelled-out word as input and yield the addresses of corresponding entries in the phonological and semantic data stores.

The information in the three "content" stores would be as follows. The graphemic code would simply be a letter code or numeric equivalent. Phonology would be coded numerically in 1:1 correspondence to the International Phonetic Association scheme. In the semantic store it is proposed to characterise each word by codes giving its syntactic status and semantic domain, followed by codes giving values on the semantic features relevant to its domain.

Once an initial set of words has been defined to the system, it may be possible to have the lexicon grow by defining new words in terms of already defined words. For example, once the system has had "small", "mountain" and "lake" defined explicitly by the programmer, it could perhaps acquire a definition of "turn" as equalling a "small, mountain, lake".

As well as being of psychological interest as a model of human processes could this project have any foreseeable applications in the long-term? One possibility is that a version of the final system could be incorporated as a helpful thesaurus into an advanced word processing package.

For example, the semantic store could be used to generate words of similar or contrasting meanings to a given probe word.

Also, a user's "tip-of-the-tongue" problems might be aided by providing the system with various relevant words (eg "small, green, hairy, exotic, juicy, fruit...") as input in an attempt to retrieve target words (eg the fruit name "kiwi").

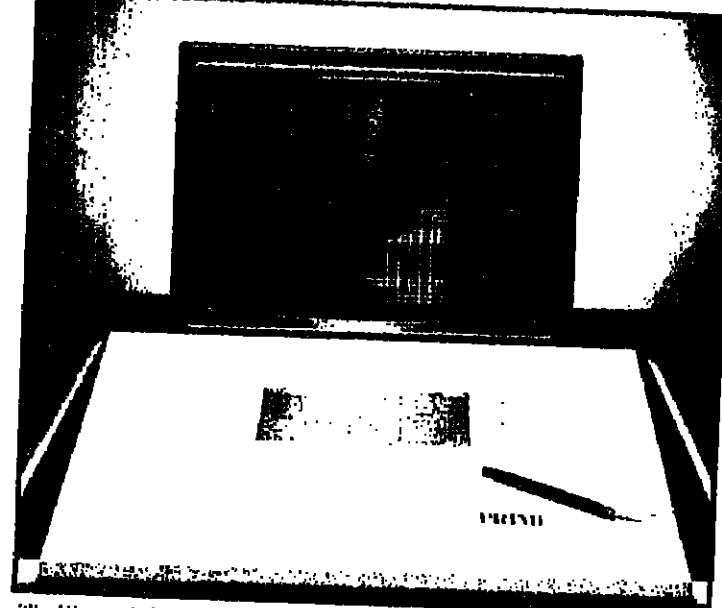
The phonological store could be used to supply the user with rhymes or alliterations as desired.



GILHOOLY... Psychologist interested in artificial intelligence.



FEIGENBAUM... List of expert systems is growing daily.



The Electronic Design Management System from Prime Computer.

Easy-to-use system for electronic design

PRIME Computer has launched in the UK the EDMS Electronic Design Management System, described as the first computer aided engineering and design system to cover every aspect of the design of digital circuits from initial concept through analysis and simulation to final design in one integrated system.

EDMS has been designed to achieve overall improvements in product quality and costs and in the speed of the product development cycle.

It is said to be easy to use and requires no programming experience. It runs on Prime computers and colour graphics workstations and features a component library, a design database, editing, report writing, electronic design utilities plus interfaces to many commonly used CAE application software packages.

Based on Prime's database management system, DBMS, it also incorporates many controls and tools required by project managers.

To develop schematics with EDMS the engineer selects a page format and chooses components from the library. Non-graphic in-

formation can be entered through alphanumeric terminals. The interconnection pattern is entered and verified. Information from the design database plus the schematic information is automatically organised into workfiles, and when a diagram is complete all data is automatically verified before being stored in the database.

In addition to all the data management facilities for CAE, EDMS includes interfaces to link it with commonly used design and analysis software. Digital designs in EDMS can thus be easily simulated to verify feasibility and then converted into printed circuit board, wire wrap board or integrated circuit layouts without re-entering data. Final drawings can be produced and modified in a fraction of the time it would take manually.

The price of a typical configuration with EDMS software, eight graphics workstations, 24 alphanumeric terminals, a Prime 750 with four 8Mbytes of main memory and two 300 Mbyte disc drives would be £353,000.

Prime Computer (UK) (CW), Tel: (01) 572 7400.

Document and label printers

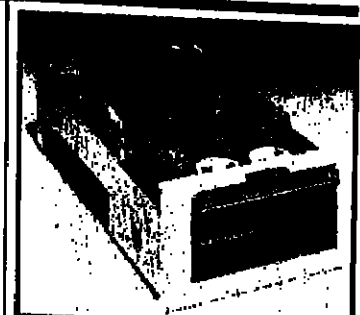
TWO high-quality, special purpose printers first shown in the UK at Compec '82, are now commercially available from Pragma. Both are made by IIR, France.

The IER 310 document printer features accurate printing on paper up to A4 size, and will automatically adjust to forms up to 2.5mm thick. Particularly suitable for handling pass-books, statements and letters, this machine also has a tally role providing blind copies as required. The nine-needle head prints a full range of characters at speeds up to 160 characters per second, and interface is either asynchronous serial (V24 or RS232C) or Centronics parallel.

The IER 320 is a special purpose, single sheet printer, intended for self labelling and similar operations. Its major feature is accurate bar-code printing, and the nine-needle head prints 8.5 to 10 characters per inch according to bar-code type, plus 64 Ascii characters. Documents can measure from 25 to 110mm in width, with minimum and maximum length of 60mm and 290mm respectively and an automatic cutting facility is available.

One-off list prices are £3,286 for the IER 310 and £3,641 for the IER 320.

Pragma (CW), Pragma House, Weirvale Industrial Estate, Denham Way, Rickmansworth, Hertfordshire WD3 2RL. Telephone: (0923) 720326.



The seven-track cartridge transport from Kennedy.

Seven-track cartridge transport

KENNEDY has launched the Model 6470, a seven-track cartridge tape transport designed to provide high speed back-up for 8in and 5¼in Winchester disc drives. The Model 6470 records 50 megabytes at 10,000 bpi in both the streaming and start/stop modes.

The Model 6470 represents a breakthrough in cartridge tape technology. This is the first time that a cartridge manufacturer has offered upwards compatibility between successive generations of its transports, says Kennedy. Cartridge tapes generated on the 6400-bpi Kennedy Model 6450 and 6455 drives can be read by the seven-track 10,000 bpi 6470 mechanism without need for modification or realignment of the head.

Kennedy International (CW), McGraw Hill House, Shoppenhangers Road, Maidenhead, Berks. Tel: (0628) 73939.

NCR accounts for up to 200 hotel guests

A FRONT desk accounting system called Quicksilver for use in hotels with up to 200 rooms has been released by NCR. Essentially a powerful computer programmed to operate as simply as a cash register, Quicksilver also provides vital management information, producing instant reports on room status, guest accounts and occupancy statistics.

The system comes as a free-standing terminal with full typewriter keyboard, a visual display screen, 27 programmable multi-function keys, a slip receipt and journal printer, and integrated digital cassette. Up to two local or remote cash drawers are available as options.

Quicksilver provides for the small to medium-sized hotel the same organisational and financial efficiency that until recently has only been available to large companies or multiple operations. For

around £6,900, including software, hotel managements may now benefit from complete control from check-in to check-out, says NCR.

A memory based room table holds information for up to about 200 rooms, and each room may have up to two folios attached to it.

The guest accounting function operates from registration to check-out, and is started by keying-in a room number which is automatically checked against the room table for availability. When a room is allocated, a new guest folio is headed up and the cashier indicates whether it will be the standard room rate, an adjusted one or a special arrangement.

The system has been designed so that hotel groups can use common stationery.

NCR (CW), 206 Marylebone Road, London NW1 6LY. Tel: 01-388 8244.



Office range

THE new colour co-ordinated Office range of modular office furniture and filing systems comprises interchangeable components designed to provide a variety of different system layouts to suit particular office tasks. Illustrated above is the Data Desk and smaller VDU Desk linked by a 90° connector. The new modular shelving in the background can be adapted to store printout binders, disc packs, tapes, IBM magazines and disc cartridges.

Ofrex (CW), Ofrex House, Stephen Street, London W1A 1BA. Tel: 01-636 3686.

50% saving claimed for terminal

DATA Design Techniques is marketing a microprocessor-controlled video terminal that it claims costs up to 50% less than some of the terminals it emulates.

The display is of a high quality with a monitor which has 2% geometry on all sides, 10% linearity 20MHz bandwidth, 19.2KHz horizontal frequency and low power dissipation.

The 12-inch, P31 phosphor, anti-glare screen displays 24 lines of 80 columns plus a 25th status line. Characters are formed using a TV raster scan technique and the format is 7x9 dot matrix with 9x12 resolution. Spacing of two dots between characters and three lines between rows provide a legible, crisp character.

The terminal, known as the VT-4100, incorporates full editing facilities.

Typical pricing for the VT-4100 at the quantity six to 19 level is £322. Delivery averages 30 days.

Data Design Techniques (CW), 68/70 Tewin Road, Welwyn Garden City, Herts. Tel: Welwyn Garden 34774.

PRODUCTS

Controllers offer powerful local graphics

SINTROM has launched in the UK two controllers from Raster Technologies that offer graphics system designers powerful local graphics capability as well as unique application transportability between 500 and 1,000-line graphics systems.

The first system, the Model One/20 controller, has local intelligence and advanced multiprocessor architecture to provide fast response for interactive applications. It supports up to 24 image memory planes and allows simultaneous display of more than 16 million colours. It allows a user to display a full 1024x1024 image on a low cost 512x512 line monitor and a method of dual mode image addressing provides automatic anti-aliasing.

The second system, the Model One/40, which is RS343C compatible, is designed to provide high display quality at low cost, supporting image memory configurations from 1024x1024 x 1-bit to 1024x1024 x 6 bits. It supports six memory planes and allows the simultaneous display of 64 colours from a palette of 16 million colours.

Both the Model One/40 and the Model One/20 are dual mode compatible to allow the user to interchange between lower cost, lower resolution graphics output and the higher 1024x1024 graphics quality.

Using a single command, the user can select whether to display image memory as a full 1024x1024 array or as a 512x512 window into image memory. This application

transportability between 500 and 1,000 line graphics systems means that a programmer can develop a single version of an applications software package to run with both 500 and 1,000 line monitors.

The central processors of the Model One/20 and Model One/40 are high-performance 16-bit microprocessors configured with 24 kilobytes of PROM and 32 kilobytes of user-programmable RAM. They can be used with virtually any 16 or 32-bit computer system, says Sintrom, and feature a multiple processor design to relieve the host computer from such tasks as interactive menu management, graphic input device control and other real time tasks.

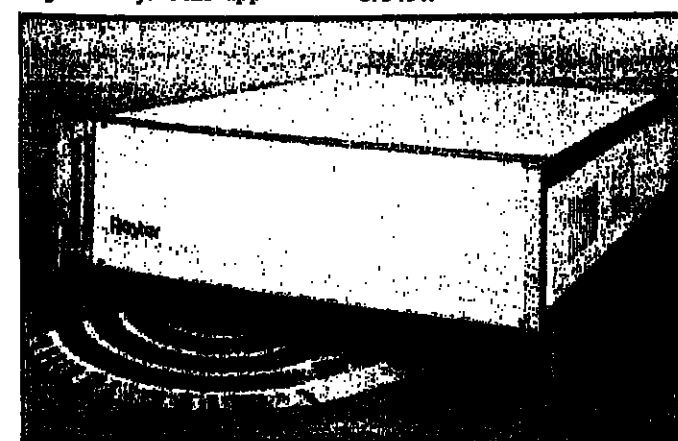
By partitioning graphics tasks between the host computer and the Model One they improve overall system performance and increase user productivity.

Both systems, which come in a 5in enclosure or mounted in a standard 19in rack, have local intelligence and can be used with a dumb terminal or work without a host computer if necessary.

They have over 100 graphic commands and integrated debugging tools to reduce application development time.

Graphics macros give easy access to local 16-bit microprocessor power using simple Fortran subroutine calls. A broad choice of interactive devices, host interfaces, and Fortran library are available.

Sintrom Electronics (CW), 14 Arkwright Road, Reading, Berkshire RG2 0LS. Tel: (0734) 875464.



Raster Technologies Model One display controller.

Multi-media system plots on 44in wide film

THE 8244F multi-media electrostatic plotter, which plots on 44-inch wide film and paper, has been launched in the UK by Versatec. This allows users to make major savings by using opaque or translucent paper for economical "quick-look" preliminary drawings and then switching to durable clear or matte finish films for overlays, duplicating and final plot production, says Versatec. The plotter is particularly suited to CAD, seismic work, mapping and

business graphics. The 8244F plots on 44-inch wide media at ½-inch (1.27cm) per second to draw 8.5 square feet per minute and plots with a resolution of 200 points per inch on film and paper. It prints 538 column lines wide at 240 lines per minute.

The 8244F plotter is priced at £37,394, and quantity and OEM discounts are available. Versatec (CW), 27/35 London Road, Newbury, Berks. Tel: (0635) 42421.

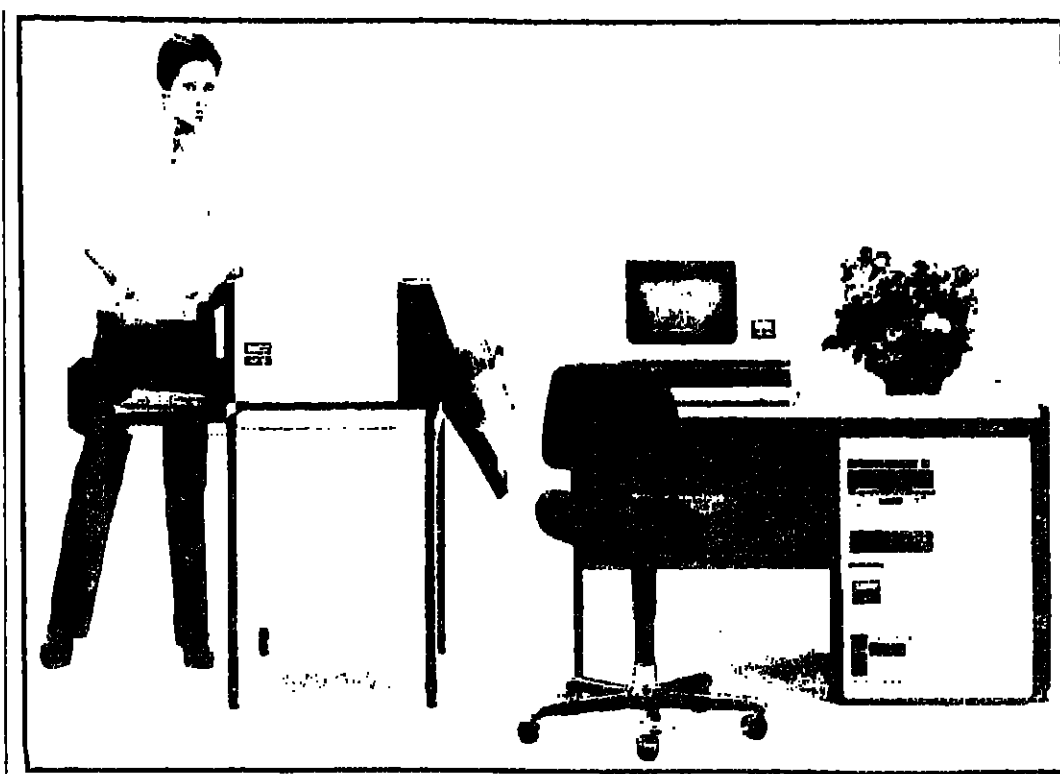
Printer developed for micro business systems

A PRINTER specifically developed for microcomputer business systems has been added to the range distributed by Datas.

The Centronics 159 has a push tractor feed with pulling friction rollers. Its five-part forms capability, variable top-of-form and forms tear-off within one inch of top-of-form make the 159 suitable for transaction document, general business and data processing applications, says Datas.

Printing at 150 cps, the Centronics 159's standard features include 40, 80 and 132 column format, 9x7 dot matrix, expanded and compressed print, 96 character Ascii, a "clean hands" ribbon cassette, adjustable tractor and visual paper-empty detection.

The 159 is said to be compact, low-priced, fast and quiet. Datas Ltd (CW), Tudor Road, Altrincham, Cheshire, WA14 5TN. Tel: 061-941-2361.



The Datadisc AP10 Automatic Addresser from Kemp Application Sales.

Turning the computer into an automatic addressing machine

ADDRESSING mail with labels has always been a time-consuming and expensive operation because of the double operation required. Kemp Application Sales claims to have overcome this problem with the introduction of the Datadisc AP10 Automatic Addresser - a peripheral that is said to turn any computer in common use into an automatic addressing machine.

The Datadisc AP10 is capable of direct printing up to 10,000 addresses an hour of all kinds of mailed items which need not be sorted. Further, it offers unlimited selection and will print additional information if necessary.

The direct printing operation is effected by line offset dropout typeheads (eight maximum), which eliminate any embossing, liquid inks, spirit solvents, spray ink or wet glue. Instead, a print ribbon

runs under each of the dropout typeheads to give a direct, clean and dry addressing operation similar to that of a typewriter.

If necessary, the Datadisc AP10 printer can be supplemented by an RS10 microcomputer and the DP10 keyboard with visual display unit. These, with the Logomail software package will provide an independent computer addressing system.

The Datadisc RS/DP10 has built-in operating instructions, which make it simple to use. From the point of switch-on, all operations occur in dialogue form to guide the operator step-by-step. A protection facility guards against faulty operation - for example, stops are programmed into the system which automatically prevents double addresses from being entered.

Datadisc RS/DP10 is also provided with modern access methods for changing, erasing and adding address data. This includes co-ordination with other data files, storage, versatile file control and calling of statistical information.

Automatic match coding gives every recorded address its own code with which it can be activated, so that it can be selected and if necessary brought to the display in a fraction of a second.

With the introduction of the Datadisc, KAS maintains that it is now possible for the many companies with bulk mail addressing problems to exploit the modern methods of data processing.

Kemp Application Sales (CW), 46/50 Coombe Road, New Malden, Surrey KT3 4QJ. Tel: 01-842 2248.

Economic point-to-point data links

POINT-TO-POINT data communications over broadband coaxial cable networks can be achieved economically with a new RF Data Modem from 3M.

Providing a serial RS232C data link for terminals and printers, the modem, Model 925/926, can be incorporated in fully loaded CATV networks with other data modems, audio modems and video distribution systems. It operates asynchronously in full or half duplex modes at up to 9,600 bits/sec. The RTS/CTS delay time is fixed at 500 microseconds.

Employing the new modem in pairs, up to 75 point-to-point, full duplex data links can be established within the spectrum of two CATV channels, with a possible total of 225 links.

3M United Kingdom (CW), 3M House, PO Box 1, Bracknell, Berks RG12 1JU. Tel: (0344) 58307.

63-key micro keyboard is launched

A LOW profile, microprocessor-based keyboard, the AKL81-042, has been introduced by Alphametric.

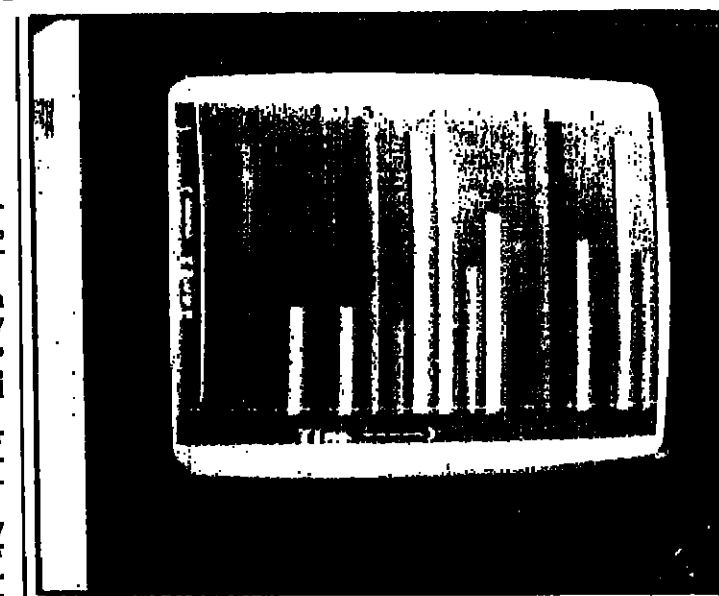
Designed and manufactured in the UK, it is a full travel, 63-key query keyboard with BCS, TAB, CAPS, LOCK, CTRL, SHIFT, DELETE and four cursor control keys.

The on-board microprocessor gives flexibility to terminal designers. N-key rollover is a standard feature.

The new keyboard requires only a single 5V DC, 200mA power supply. Both parallel and TTL level serial data outputs are standard.

Serial data rate is 1,200 baud with a format of one start bit, eight data bits (low parity) and one stop bit.

Alphametric Keyboards (CW), Manor Way, Old Woking, Surrey. Tel: (04862) 71555.



The 14-inch colour monitor from USI International.

Colour monitor is easy on the user's eyes

A 14-INCH composite video colour monitor has been added to USI International's line of amber and green monitors.

The new monitor eliminates the two-step process of converting the computer's video signal to a form that a television can receive and the subsequent conversion within the television set back to a pure video signal. This does away with the loss of image quality that is inherent in television use with a personal computer.

Bright image presentation with low distortion is ensured through the use of high-performance components, says USI. "Characters are clean and crisp as are graphics and

other images." As with the company's amber and green monitors, the new colour monitor is burned-in for a full 100 hours and completely re-inspected prior to shipment. USI attributes the low failure rate to an extensive and stringent quality control programme.

USI provides dealer and end-user support and the company says it maintains a strong over-the-counter service.

The new monitor retails for \$399, with volume discounts available. USI Computer Products (CW), 71 Park Lane, Brisbane, CA 94005. Tel: (415) 468-4908.

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draws upon the experience of a Group of companies who in 13 years have together become recognised as one of Europe's leading computer staff organisations - KNIGHT COMPUTER SERVICES, H. PROGRAMMING & SYSTEMS AND HUNTERSKILL INTERNATIONAL LTD.

We have a commitment to the highest standards of performance and our reputation has been built upon our thorough understanding of the market coupled with our ability to get results. Our development comes from providing high quality service exclusively in the specialist computer staff market to installation centres of both users and manufacturers. The HUNTERSKILL Group provides staff in all areas of data processing. Our consultants co-ordinate permanent and contract assignments ranging from Management and Executive through Analysis and Programming and including all categories of Operations staff.

In recent years we have become increasingly international with representation in several countries to offer clients on-the-spot guidance and advice on how British staff can meet their requirements.

THOSE WHO JOIN US will work in an electronic office environment with full administrative support to ensure a fast and efficient service to customers and candidates alike. We provide a first class working environment and excellent facilities to assist your sales performance. The salary and commission structure is designed to be extremely generous for self motivated and hard working consultants. Within our Group are opportunities of career advancement for all successful staff.

If you would like more information regarding these positions, please contact Mrs. S. K. Dorey, Personnel Manager on 01-491 4706 or send CV to 14 Old Park Lane, W1.

Recruitment Consultants

To continue our policy of expansion we are currently seeking additional staff in the following areas:

Operations Division: London

This division deals with Data Prep, Word Processing and Computer Operators. We are looking for a reliable person with selling experience in one of these fields. You must be able to deal with clients and candidates in an enthusiastic and professional manner.

Recruitment Division: London

You will already have experience in placing Systems & Programming personnel in permanent positions. In addition, you must be able to demonstrate the confidence and ability to sell advertising campaigns and our specialist consultancy services.

Contract Systems and Programming: London & Amersham

Sound background in a Programming and Systems contract sales environment with the ability to demonstrate initiative, drive and enthusiasm.

Programmers for IBM System 38

Kent Coast

to £10,000

A measure of a company's success is related to the high number of repeat holiday bookings received each year.

Saga Holidays PLC have achieved this by providing a high quality service to its customers and they currently sell nearly a quarter of a million holidays every year.

Their business in recent years has been further enhanced by the ability to offer information to all customers, expeditiously and reliably.

Their computer installation comprises two IBM System 38's supporting sixty terminals. They are designing a comprehensive integrated reservations and booking system, incorporating customer and marketing application areas.

To meet the ever increasing demands of their Data Processing strategy, Saga Holidays are currently seeking to recruit three additional programmers to supplement their existing development team.

Applicants will have a background in an interactive environment, preferably with programming experience of either RPG II or RPG III. A further advantage will be a knowledge of IBM QSD hardware and software. Saga Holidays are housed in impressive offices situated in pleasant surroundings overlooking the English Channel. Successful candidates will be offered a salary of up to £10,000 per annum depending on qualifications as well as a substantial company benefits package. For further information and an early interview, contact Knight on 01-491 4706 quoting Ref: MJ/905.

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for a well established organisation with a worldwide household name and a turnover in excess of £1bm.

The appointee will establish strategy and plans relevant to the introduction and implementation of new computer based information systems for the group, and will manage and control a large systems development complement.

Candidates must possess proven ability to identify with the board and business management at all levels. Successful management of a large DP systems development resource is essential, and wide experience in working very closely with business management and staff in the determination of information needs and requirements is vital.

Experience in the management of systems development for a large FMCG environment would be advantageous but is not mandatory. Age Indicator is around 38.

For successful performance and achievement, career progression opportunities are outstanding.

A salary to £30,000 will be offered plus large company benefits including car.

Please write or telephone for a Personal and Professional History Form to ANTHONY SPURR, Manager, Executive Selection Division at the address below, quoting reference number G1114.

(3241)

BIS Applied Systems Limited
York House, 199 Westminster Bridge Road
London SE1 7UT
Telephone 01-633 0866

BIS Applied Systems

The P-E Consulting Group

Park House, Egham, Surrey TW20 0HW Tel: Egham 34411

PE

Sales Executives

Computer Consultancy Services

£21K on target plus car

Our consulting work in computer systems, office automation and information technology continues to expand rapidly and we require an experienced sales executive to help grow our services further. These services include:

- feasibility studies
- policy and strategy studies
- specification, selection and implementation of systems
- project management

This opportunity is based at our Egham office and will attract those aged around 25-35.

Applicants, male or female, will have a proven track record in selling computing or related services. They will be self-motivated individuals who can demonstrate a capability in marketing and selling the services of a highly successful team of professional computer and office automation consultants. They will also have an entrepreneurial flair and be able to demonstrate sales management potential.

An excellent remuneration package is offered, including a high basic salary and commission which will yield £21,000 a year for target sales, a company car and a non-contributory pension scheme.

Please write in confidence with full CV or telephone Jan Szymankiewicz, Director, Business Modelling and Systems quoting reference EG/BMS/36

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£21K on target plus car

Having made a successful entry into microcomputer software distribution, The P-E Consulting Group seeks to appoint a highly motivated individual who will have total responsibility for the marketing and sale of its microcomputer software and consultancy services. Applicants, male or female, should be ideally aged between 25 and 35.

Candidates will need to demonstrate:

- a successful background in selling computer systems or services
 - a sound appreciation of management needs
 - an entrepreneurial flair
 - a desire for participation in a rapidly expanding business
- The benefits include a high basic salary and commission which will yield £21,000 a year for target sales, company car and a non-contributory pension scheme.

Please write in confidence with full CV or telephone Jan Szymankiewicz, Director, Business Modelling and Systems, quoting reference number EG/BMS/37

(3231)

SUPPORT SERVICES MANAGER

CIRCA 18K + Car

BERKSHIRE

Our Client is the pioneer and world leader of 32 bit minicomputer architecture. The company has grown dramatically since 1974 and its average annual growth in sales of 70% per annum is due to the innovative design of their sophisticated hardware and software. To this end they have established their international Software Development Group in Berkshire.

A senior manager is required to control the support services of this group. First and foremost he will be a proven manager, able to work under pressure, have strong liaison skills and command respect.

The responsibilities of his team will involve the day to day running of the computer centre and the provision of software services including quality assurance, documentation, software packaging and management information systems.

This senior management position attracts a generous commencing salary, company car and competitive benefits package.

For further details of this challenging and rewarding position please telephone Keith M. Taylor or write enclosing a full C.V.

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Analyst/Programmers RPGII International In-House Consultancy

£8-£14K West London

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You will have ample scope to use your experience of commercial IBM System 34 developments using RPGII.

If you have the personality and communications skill to act as advisor and consultant to users and line management throughout an international organisation this is a first-rate opportunity to grow within a progressive company.

The position involves some opportunity for international travel particularly within Europe, to provide assistance to existing computer installations in most major capital cities.

Salaries and benefits are excellent as one would expect of a major organisation and will reflect the level of experience and qualifications you can bring to the position.

To arrange an interview ring: 01-353 5605 (office hours) or at other times 01-674 8197 or 0227 710410



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IBM 4300 COBOL/CICS/DLI DOS/VSE VM/CMS VSAM

Structured programming is standard. Training will be given where necessary.

SENIOR PROGRAMMER to £11,500

This position will appeal to programmers with 3-4 years' experience, who are now ready to assume some supervisory responsibility. Other responsibilities will include program design, both batch and on-line.

PROGRAMMERS to £10,000

We are looking for 1-3 years' experience of IBM COBOL. We offer challenging work in an environment where interactive program development is the norm.

The salaries indicated are enhanced by generous banking benefits, which include 5% mortgage.

If you have relevant experience please contact Chris Oakley at Manufacturers Hanover Trust Company, Queensbridge House, 60 Upper Thames Street, London EC4V 3EN. Tel: 01-600 5666 Extn: 3533.



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BRIGHTON POLYTECHNIC

Department of Computing and
Systems

Information Technology Initiative

The department has been selected to increase its student intake to 350 places and now plans an additional 1155 Computing conversion course for Humanities and Social Science graduates.

Do you have the knowledge and experience to assist others to make a good career in Computing?

2 Principal Lecturers (3-year contract) and
3 Senior Lecturer/Lecturer II posts in Commercial Computing

Applicants for the Principal Lecturer posts will have the industrial or commercial experience and knowledge to teach on an MSc Computing conversion course for Humanities and Social Science graduates.

The Senior Lecturer/Lecturer II posts require applicants with knowledge and experience of 'real world' computing to teach commercial computing and communications to computing undergraduates and diploma students.

Salary:
Principal Lecturer - £11,831-£15,018
Senior Lecturer - £10,123-£12,816
Lecturer II - £8,855-£11,022

Further details and application forms from the Deputy Head of Personnel, Brighton Polytechnic, Moulsecoomb, Brighton BN2 4AT. Tel: Brighton 01273 2537. Closing date May 17, 1983.

(3428)

UNIVERSITY OF NEWCASTLE-UPON-TYNE Computing Laboratory

SYSTEMS PROGRAMMERS DISTRIBUTED COMPUTING

The Computing Laboratory is looking for two systems programmers to work on a small group concerned with the development of a distributed computing service. The main service computer is due to be replaced in 1985 and we want to take the opportunity at that time to provide the network infrastructure for the distribution of computing power as the way forward for the computing service.

Applicants should be graduates and preferably have some systems programming experience, particularly of networking protocols and technology.

One of the posts is permanent and appointment will be made at an appropriate point on one of the following scales according to age, qualifications and experience:
Range IA: £8,276-£11,105 or Range II: £10,240-£13,065.

The second post is for three years only. Appointment for this post will be at an appropriate point on the Range IA scale according to age, qualifications and experience.

Further particulars may be obtained from the Deputy Registrar (F.P.), The University, 5 Kensington Terrace, Newcastle-upon-Tyne NE1 7RU, with whom applications (2 copies), together with the names and addresses of three referees, should be lodged not later than 18th May 1983. Please quote reference C19.

(3428)

UNIVERSITY OF NOTTINGHAM RESEARCH ASSISTANT POSTS IN THE DEPARTMENT OF MATHEMATICS

Applications are invited for two posts attached to an SERC-funded research project to develop numerical integration methods and techniques of graphical display for Bayesian inference. The appointments will be for up to three years. Salary will be on the IA scale, £8,276-£11,105, for applicants having a PhD or equivalent research experience, or on the IB scale, £6,550-£9,240, for applicants having a Bachelor's degree. Appointments must be taken up by 1st October.

The project will require a range of skills drawn from Statistics, Numerical Analysis, Programming and Computer Graphics. A 68000 based, single user work station operating under UNIX and a high resolution colour graphics subsystem is dedicated to the project. Applications should be sent to the Department of Mathematics, University of Nottingham, Nottingham NG7 2RD, or telephone 0201 52101, ext 2817. Detailed letters of application including CV, names and addresses of three referees and indicating why you are suitable should be sent directly to Professor Smith by 18th May 1983.

For further particulars, write to: Professor A. T. M. Smith, Department of Mathematics, University of Nottingham, Nottingham NG7 2RD, or telephone 0201 52101, ext 2817. Detailed letters of application including CV, names and addresses of three referees and indicating why you are suitable should be sent directly to Professor Smith by 18th May 1983.

(3428)

APPLICATIONS PACKAGES

SENIOR COBOL ANALYST PROGRAMMERS to £10.5K
An RSX11M/M+ SUPPORT PROGRAMMER to £10.0K

This fast growing CENTRAL LONDON Software House currently employs 35 staff with a turnover of £1M per annum. They have produced integrated PRODUCTION and FINANCIAL CONTROL Software Packages, which run on a variety of MINI and MICRO computer hardware. Due to further expansion they are seeking the above staff to develop new and maintain existing products.

A MINIMUM of 2 years practical, commercial experience is essential, whilst a knowledge of DEC/DG hardware and Commercial/Production systems is desirable.

Please telephone JOHN WILLS of IMPC on 01-488 5644 for further information.



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Library Analysts are responsible for liaising with libraries on all aspects of the service and defining details of new features and services. Applicants should have either library or computer qualifications, and should, ideally, have had previous experience of computer-based library systems.

The starting salary will be at an appropriate point, according to age, qualifications and experience on the scale £8,376 to £11,105.

Application should be made by letter and should include the names and addresses of three people who would be prepared to provide a reference. The letter should be accompanied by a curriculum vitae setting out details of education, qualifications, previous experience and present salary. Applications should be sent within fourteen days of the appearance of this advertisement to the Director, SWALCAP, Willis Memorial Building, University of Bristol, Queens Road, Bristol BS8 1RJ.

For additional details of the post, either write to SWALCAP or telephone on Bristol (0272) 278913.

(3428)

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DEC Financial Programmers

Surrey to £12,000

If you have a minimum of 2 years experience of programming commercial applications, preferably in BASIC + or BASIC + 2 on PDP11 under RSTS/E or VAX/VMS, then here is an opportunity to develop your career with a successful commercial software house. Our client is involved in all aspects of software production and installation and currently requires several programmers. Contact Brian Coates.

Software Lecturers

Bucks. to £13K + car

We are seeking experienced professional lecturers to join an established and extremely well equipped training centre which functions as an integral part of our client's support organisation. It is essential to have T.P. applications experience with in-depth knowledge of data analysis. Data comms. and DBMS knowledge would be a welcome bonus. Excellent career prospects. Contact Terry Harvey.

Sen. Comms. Designer

Beds. to £15,000

If you have considerable experience of computer communications systems gained in a manufacturer's development group or with a systems house, covering software skills and hardware knowledge this could be your ideal position. You will operate across multiple projects, appraising and advising on designs and assessing implications of change on original designs and objectives. Contact Terry Harvey.

Banking, Comms.

S.E. London to £13,000

The communications centre of an international Bank requires additional programmers for the enhancement and support of their DEC and IBM Series 1, based systems. Message switching and processing is via PDP11/70 and PDP11/34 systems with Series 1 links to B.T. telex. Assembler level programming required. Attractive bank benefits include low internal mortgage, free pension and restaurant. Contact Terry Harvey.

Software Support

M'ssex/B'ham to £14K + car

Take this opportunity to join one of the most successful computer companies of our time. You will need several years technical software experience to include: real time, data communications and/or database systems. Analysts with banking or financial systems experience would also be of interest. You cannot fail to be impressed by this client. Higher salary but no car for City office location. Contact Terry Harvey.

'C' & Ass'bler Programmers

Wilts. c. £10,000

Rarely does the opportunity occur to join a company of this class. It has built an international reputation for its software products in Europe, USA and Japan. We would like to hear from graduates with a minimum of one years experience who believe they can make a significant contribution using PDP/M68000 UNIX development systems. Contact Terry Harvey.

Electronics Design Engs.

Herts/Berks. £9K-£13K

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Sen. Prog. Comms. Dev.

Beds. to £13,000

Any software person currently involved with communications will find the range of projects with this client wide enough to present him/her with new challenges. X.25 and L.A.N., Ethernet, electronic mail, packet switch performance monitoring, SDLC-3270 compatible products, M68000 microcode, network management, etc., etc. Positions exist for implementers and designers. Relocation assistance given. Contact Terry Harvey.

Micro Development

Cambs. £9K-£11K

An important and growing application area for micro based systems is in portable data capture machines. Our client is building a team of development staff who are working on new products in this area. If you have a minimum of two years experience programming micros, or minis using assembler and a high level language and are capable of design and specification, please apply. Contact Terry Harvey.

Prime Fortran

London £10K-£12K

Several openings have arisen with this exceptionally successful company for people with 2-5 years comms. background. The duties are evenly distributed between design, development and sales support, so a good client manner is essential together with some Fortran expertise, preferably on Prime equipment. Other requirements are energy, enthusiasm and determination. Contact Brian Coates.

Comms. S/W Design

Herts. to £12,000

Develop your career and your existing communications software skills by joining a company already firmly established in this high growth sector of the computer industry. We are seeking software people with experience in developing 3270 compatible systems and as much experience as possible in X.25 and L.A.N. products. Experience in 'C' or PASCAL using M68000 and/or T19900 would be useful. Contact Terry Harvey.

Senior H/W Design Engr.

Surrey to £14,500

A well-known producer of micro computers and associated software wishes to recruit hardware design engineers with 5 years experience in the design of 8088/8086, M68000 or word processing and personal computing equipment for high-volume production, together with an electronics degree or equivalent. Less experienced applicants may be considered for middle and junior positions with the same company. Contact Brian Coates.

Comms. S/W Italy

London base to £17,000

Candidates will need to have several years comms. software design and implementation experience to advise up to project leader level on existing projects. The assignment calls for up to 18 months in Rome with a permanent base in London. Overseas expenses cover married couples' status, if required. Excellent company and long term career prospects. Contact Brian Coates.

Development Manager

Berks. to £15K + car

Ideal candidates will have mixed H/W and S/W experience gained in product design and development. You will control a small, expanding team of programmers and engineers. Development systems include Tektronix M.D.S. and PDP11 with UNIX. You will be expected to prove your technical ability and demonstrate your management awareness. Short duration visits to U.S.A. Contact Terry Harvey.

Programmers Designers

Wilts./L'don. £8K-£10K

Our client can offer extremely interesting projects in distributed processing and office systems with rewards based on merit and career advancement prospects second to none. They require technical programming experience at the mini/micro level and prefer degree level candidates. Development is done in language 'C' and PL/M-86. Candidates may opt for a Swindon or London location. Contact Terry Harvey.

Real Time Software

Hants. £10K-£15K

Major new projects involving the application of powerful superminis are being undertaken by our client. Their continuing success is due to excellence in project development techniques and control. A range of work is available to stretch your capabilities. DEC and Tandem experience would be particularly useful. Candidates must be prepared to spend time on client sites. Contact Terry Harvey.

Programmers Minis/Micros

Berks. £7K-£12K

A successful company with a product having a special place in the communications and travel industry, requires several programmers at different levels to join existing development teams. Areas of relevant expertise include 280 Assembler, PDP11 systems, UNIX and 'C', PLZ, Viewdata, CP/M, comms and travel agency applications. Excellent benefits include special holiday discounts. Contact Brian Coates.

Tandem Comms.

N.W. M'ssex. £9K-£13K

This expanding, turnkey vendor of Tandem computer systems is seeking highly motivated software people to work on advanced applications using Tandem equipment. Experience in communications and screen based applications using COBOL is required. The company has its own in-house Tandem system providing training on this very popular equipment. Candidates must be presentable. Contact Terry Harvey.

Sen. System Engineer

Herts. c. £12,000

This position calls for mixed technical and project leader H/W and S/W experience gained in product design and development. You will control a small, expanding team of programmers and engineers. Development systems include Tektronix M.D.S. and PDP11 with UNIX. You will be expected to prove your technical ability and demonstrate your management awareness. Short duration visits to U.S.A. Contact Terry Harvey.

Applications Support

N.W. H. Counties c. £11K + car

We are seeking a number of pre-sales support specialists to cover the area bounded by Oxford, Reading, London, Luton. The emphasis is more on business and commercial systems experience than on computing skills. Knowledge of mini based DB systems, BASIC and data comms. would be useful. This is an expanding company with an impressive record. Contact Terry Harvey.

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commercial job seekers
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We are here to help you. Our free service to you is advice and counsel in identifying the most suitable position for the development of your career. Our consultants have held senior positions in the computer industry. They have the experience to understand your needs. If we do not have the position you want, we are prepared to help you find it. Why not accept this invitation to talk over your ideas with us.

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IBM SYSTEM Programmers
IBM 8100 DPCX or DPPX
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Contact: BILL EVANS

12 months' + assignments May, June
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HOLLAND

Contact: BILL TORBITT

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c. £9.5K
Contact: PETER JEZEPEH or FRED BRAMLEY for an immediate
confidential interview or write, enclosing a detailed c.v.

Senior Systems Designer (up to £13,000)

and

Senior Analyst Programmer (up to £11,800)

WORKING FOR THE COMMUNITY

Bloomsbury, one of the largest Health Authorities in the Country is setting up a new Computer Team for improved patient care in the field of Genito-Urinary Medicine. This is a new development, funded by the DHSS and is being specially set up to help solve the problems of sexually transmitted diseases resulting from modern day living. The positions will be based on two nationally famous teaching hospitals - The Middlesex Hospital and University College Hospital - both in the heart of London. North East Thames RHA is looking for two people to join the team which is responsible for several highly successful patient information systems running on three networked PDP 11/70 mini-computers, a distributed database of 1250 megabytes, several microprocessors and 170 online terminal users. This is just the first stage of an ambitious project to introduce several further computers of which one will be dedicated to this system.

The people being sought must have an interest in medical computing as well as having a sound data processing background. The appointments offer the challenge of joining a new and embryonic project from which the results could have a considerable benefit to the community as a whole.

Senior Systems Designer

(NHS Scale 14) c. £11,000-c. £13,000 inclusive

You will need a minimum of 5 years experience in systems design programming and implementation of interactive systems preferably in MUMPS or BASIC. Ideally you will have a knowledge of modern data management and communications techniques. You will be required to work closely with medical staff at all levels and will be responsible to the Computer Project Manager for the success of this system.

Senior Analyst Programmer

(NHS Scale 9) c. £9,600-c. £11,800 inclusive

Around 4 years experience designing and implementing interactive computer systems is necessary. You will be working very closely with the Senior Systems Designer and other members of the District's computer team.

Both these positions offer excellent fringe benefits which include:

- ☐ Annual salary reviews and scale increments
- ☐ Good working conditions
- ☐ Pension scheme
- ☐ 22 days annual holiday
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Please contact Ruth Grace, Computer Project Manager, at U.C.H. for an informal chat on (01) 387 9300 Ext. 114 or 115. For an application form and job description please contact: Rob Irwin, Administrator, Regional Computer Centre, Harold Wood Hospital, Gubbins Lane, Harold Wood, Essex RM3 0BE. Tel: Inghelbourne 71821. Please state which position you are interested in. Closing date for completed applications: 18th May, 1983.

NORTH EAST THAMES REGIONAL HEALTH AUTHORITY

MIDLANDS SALES EXECUTIVE TERMINALS/MICROS c£25K + Car

Our client is the most successful computer rental company in the U.K., (150% increase in turnover in 1982), with offices throughout England and Scotland. It has been so successful because it has achieved a unique combination of professionalism and a happy working environment where the majority of salesmen consistently over achieve.

This may in part be due to its policy of delivering a product set to the marketplace which is chosen for its excellence. Its micros include the IBM and DEC P/C's, the ACT and ALTOS range and its terminal products include DEC, HP and TEK equipment.

To assist in the company's growth we are seeking to recruit a sales professional who is experienced and successful in the micro/terminals marketplace. He will be totally responsible for a Midlands territory and will report directly to the National Sales Manager. The position offers early opportunity for Sales Management.

For full details telephone Kevin McCourt or write enclosing a curriculum vitae.

SYSTEMS SECURITY SPECIALISTS MIDLANDS HOME COUNTIES c£20,000 plus substantial benefits

A major U.K. Systems House is expanding its capabilities to support the development and implementation of Risk Management Programs on large computer projects. Computer Systems Security Specialists are required with sound practical experience in the following areas:

- a. Risk Analysis.
- b. Design, Development and Implementation of Computer System Safeguards.
- c. Development of Computer Systems Security Test and Evaluation Plans.
- d. Development, Implementation and evaluation of Security Tests and audits.

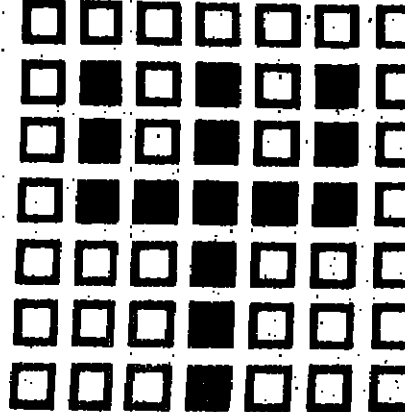
Candidates should have background in computer systems design, development and testing, a high level of initiative, and the ability to communicate effectively (oral and written) at all levels of ADP management.

Salary will be commensurate with experience, and is unlikely to be a limiting factor for the right candidate.

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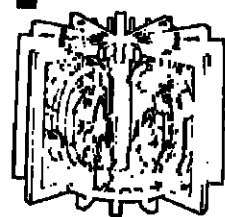
are required at:
Culham Laboratory, near Oxford, the Atomic Energy Authority's centre for research into nuclear fusion, to join a small expanding group working on a variety of novel projects. Currently, these are in the areas of software tools, interprocess communications and graphics. Most of the work is real time on a range of minicomputers using a variety of languages and up-to-date software engineering techniques.

Designers and scientific programmers with a knowledge of at least one minicomputer system (preferably UNIC, RT-11, RSX, Primos or Nord Sintran) wishing to expand their experience of systems and undertake design and implementation work for challenging projects should apply to:

Mrs P Halliday, Personnel Department, Culham Laboratory, Abingdon, OXON, OX14 3DB.
Telephone No: (0235) 21840 ext 4391.

Appointments will be as Higher Scientific Officer with salary in the range of £7,320-£9,765 according to age and experience.

Applicants will require a good honours degree preferably in computer science.



Culham
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ICL SYSTEMS DESIGN

Our Client, a major multi-national corporation, wishes to recruit a number of additional systems designers, to assist with developing their series of ME29s being installed. Applicants must have had suitable relevant experience including IDMS and DDS. They should preferably be single or married without children; be self-starting; possess an outgoing personality; be keen to play an active role in a large international DP network; and be prepared to travel world wide, if required. A knowledge of Insurance would be advantageous, but is not considered essential. Two to three year contracts are envisaged, with a possibility of long term permanent employment.



For further information, and a discussion in the strictest confidence, please contact C. D. Stock, General Manager, IPS Group, Lloyds Avenue House, 6 Lloyds Avenue, London EC3N 3ES, telephone 01-481 8111.

User Interface Programming

The Computing Division at the Rutherford Appleton Laboratory provides a service for researchers sponsored by SERC in universities, polytechnics, and its own laboratories. An IBM 3081-D has recently been installed alongside an IBM 3032 and linked to workstations and interactive facilities (PRIME, GEC and VAX) via SERCNET. Developments are associated with exploiting new facilities consistent with a transition from services provided previously.

The User Interface Group is responsible for liaising with users, offering advice and guidance with problems, documentation and user education, implementing utilities and some involvement with developments of the service. A vacancy exists in this group for a programmer able to specialise in Network Support. It covers all the above areas and requires familiarity with problems of transporting data and programs across networks (academic, national and international) and a number of different operating systems. In addition to the above, the successful applicant will spend some time in general advisory duties.

Applicants should have an honours degree in Computer Science or related subject. A good knowledge of FORTRAN and the ability to communicate with users is essential for this post. Experience of using a large computer service, preferably IBM based, will be an advantage. Other relevant areas of knowledge are VAX/CMS, MVS/JES, PASCAL, Networking, Graphics and Operating Systems.

The post will be in one of the following grades, depending on your qualifications and relevant experience:
Higher Scientific Officer £6,840-£9,126
Scientific Officer £5,422-£7,399
Some assistance with the expenses incurred in house sale/purchase may be available.

The Laboratory is a friendly community with its own restaurant and sports facilities nearby. Benefits include a local transport service, sick leave allowance and generous holidays.

Application forms from: Recruitment Office, RAL, Science and Engineering Research Council, Chilton, Didcot, Oxon OX11 0QX. Tel: Abingdon (0235) 445435 quoting ref VN144.

Closing date for applications: 19th May, 1983.



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We now seek a Team Leader to manage a group of programmers/senior programmers working on the development of a range of on-line data base systems for a distributed processing environment. We currently operate an ICL-based network using IDMS data base systems, but are actively reviewing our future hardware needs to upgrade the system. The ability to stimulate, adapt to and manage change is essential.

Candidates should possess:

- ★ extensive COBOL experience
- ★ ideally 2-3 years in a team-leading role
- ★ experience of data base and on-line systems development and
- ★ knowledge of modern programming techniques.

Excellent benefits include relocation assistance to this attractive South Buckinghamshire location.

Please send full career details or write for an application form, quoting ref. PRB/1, to the Personnel Manager at the address below:

Amersham International plc
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Buckinghamshire HP7 9LL

Amersham

(3442)

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- identification and evaluation of suitable software for inclusion in the programme
- negotiation of contracts and oversight of their implementation
- marketing support programmes to qualified vendors, including exhibitions, seminars, product briefs, advertising, etc
- organisation of conversion programmes and sub-contracting of special local developments

YOU MUST HAVE:

- a background in applications marketing and be currently working with a manufacturer or major software house
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- the initiative, imagination, drive and sheer ability to maximise the opportunities offered by the combination of Data General's outstanding product range and third party software.

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John Cunnell,
Personnel Manager,
Data General Limited,
Hounslow House,
724-734 London Road,
Hounslow, Middlesex TW3 1PD
Tel: 01-572 7455.

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PO1 (B-10) £10,800-£12,174

The Computer Division provides a wide and growing range of services and operates a team of 100 - one under VME and the other under VAX/George 3 - and has extensive facilities. The Applications Development Manager is responsible to the Deputy D.P. & Technical Support Manager for all activities concerning the development and maintenance of computer systems, specifically those relating to the systems and programming functions. Applicants must be experienced in controlling staff and in Systems Analysis design and should also have either a degree or equivalent qualifications in computing.

Assistance with housing and removal expenses in appropriate cases.
Application form and further details from: Chief Executive (Financial Section), 2 Priory Place, Doncaster DN1 1BN (telephone 01522 28211). Closing date 12th May, 1983.
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Further particulars and application form sent on request to Mrs. J. E. Mitchell, The University, Manchester M13 9PL. (3449)

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Opportunities are available for a number of contract and permanent candidates with the Tangent Systems and Software Group. Our support services are in demand by many client companies around the world. Amongst our current requirements are the following:

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Romford, Essex RM1 1RX
Tel: Romford (0708) 750201 (24 hour answering service)

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Applicants should preferably have at least one year's experience on an IBM System/38 working on financial or business applications. You should also have a sound knowledge of RPG, be enthusiastic and prepared to work hard to ensure the success of the project.

In return you will have the satisfaction of working to high standards in a small friendly team with a genuine career opportunity to move towards project leadership. In addition to our attractive salary the Group offers four weeks' annual holiday, luncheon vouchers, a non-contributory pension scheme, and a profit-sharing scheme.

Please apply in writing with brief cv to:
M. J. Tadman, Group Personnel Manager
THE HARTLEY COOPER GROUP
85 Gracechurch Street
London EC3 0AJ

(3451)

COMPUTER SCIENTIST

Through our subsidiary company, Robertson Research Engineering Services Limited, we have over the past few years established a leading position in geophysical offshore logging. This is the use of mobile computerised laboratories to record and evaluate formation properties found in exploration boreholes. We are now seeking to recruit a Graduate Computer Scientist to expand further our systems group and therefore facilitate the development of additional real time processing software both for use in the mobile units and at base. The ideal or two years' experience in industry. A good knowledge of Pascal and Programming for Real Time systems would be an advantage.

The position will attract a competitive salary together with a range of benefits appropriate to working with a large international consultancy and research contracting company. Please apply to:

Mr. H. W. Pike, Personnel Manager
ROBERTSON RESEARCH INTERNATIONAL LIMITED
Tyn-Y-Coed, Llanrhos, Llandudno, Gwynedd LL30 1SA
Telephone: 0482 81811

(3380)

THE UNIVERSITY OF AUSTON IN BIRMINGHAM
Computer Centre - User Services Group

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(Other Related) scale £10,570 to £13,500 p.a. Ref. 83/41

COMPUTER OFFICER
(Other Related) scale £5,500 to £11,100 p.a. Ref. 83/42

The User Services Group provides a range of services to users in the Computing Service. These services include applications software support and information, documentation and advisory services. Harris 8000 and ICL 1904 systems are currently installed, and substantial developments, including replacement of the ICL machine, are planned in the next two years. Applicants, male/female, should have at least a good degree, and specialise in database or graphics software would be an advantage. Closing date 12th May, 1983.

SYSTEMS ANALYSTS - Two Posts
(Up to £13,500 p.a.) Ref. 83/43

ANALYST/PROGRAMMER
(Up to £11,100 p.a.) Ref. 83/44

Exciting and interesting new developments including networking, modelling and online systems give rise to these three new posts in the Administrative Data Processing Unit. The Unit provides a full computer service to the Central Administration based on an ICL MLE 20 installation and is involved with a library system to be implemented on a GEAC 8000 computer. Successful candidates will have experience of integrated on-line systems together with local networks, computer models or library systems programming experience in COBOL is required and experience of ICL PRISM/PRIME would be an advantage.

For further details, particularly together with application form, please contact Mr. A. C. Ross, University of Auston in Birmingham, Gosta Green, Birmingham B4 7ET (0121 359 2611) quoting appropriate reference number. Salary scales - Other Related I £5,570 to £11,100 p.a. Other Related II £10,570 to £13,500 p.a. (3452)

PROGRAMMER

TO £7000

CITY
An excellent opportunity has arisen to join an expanding computer department within a leading firm of stockbrokers. This position requires someone with the ability to aid and liaise with in-house users and to assist in the development of further computerisation of the company.

Suitable applicants will be between 18-25, educated at least to 'A' level standard and have one year's experience, preferably gained in a financial environment using micro, programming experience in BASIC is desirable.

In the first instance, please contact Chris Newton on 01-943 0988.

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HP 3000

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ANALYSTS and PROGRAMMERS

Should you be available now or in the near future then send a detailed c.v. or telephone me, Peter Moore, for an initial discussion.

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Winchester House, Fountains Street, Manchester M2 2EP. Telephone 061 228 2776



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SALES EXECUTIVE

Hamilton Rentals Limited is a major international company, marketing a wide range of computer systems, peripherals and communications equipment, on a sale and rental basis.

An opportunity has arisen for a computer equipment sales professional to join our London office, to cover a territory comprising Kent, Surrey, Sussex, Hants and South West London.

Aged between 25 and 35, candidates should possess the proven ability to generate new business, coupled with the maturity and credibility to maintain and further develop existing long term substantial accounts.

The successful applicant will enjoy an income package of up to £18K by basic salary and commission, plus choice of company car and other benefits appropriate to a progressive organisation.

Applicants may obtain an application form from, or write enclosing a curriculum vitae to:

Mrs M. Egan
Hamilton Rentals Limited
North Circular Road
London, NW10 7UB
Telephone 01-961 8777

HAMILTON
COMPUTER AND OFFICE SYSTEMS

(3445)

Systems Programmers

W. London Up to £14,500

Marks & Spencer's Systems Support Group is looking for further high calibre Systems Programmers to work at the Company's computer centre in West London.

The successful candidates are offered a challenging future if they have proven knowledge and experience in some of the following areas:
ICL (VME) and/or DEC (VMS) operating systems;
ICL Superstructure products such as IDMS, TPMS etc;
Communications software on ICL or DEC equipment;
CME/DME System Support.

Starting salary will be negotiable up to £14,500. Other benefits include a non-contributory pension and life assurance scheme; profit sharing after a qualifying period; 4 weeks annual holiday and a subsidised staff restaurant. Relocation expenses will be paid where appropriate.

To find out about our systems in detail and about the kind of assignments you would be involved with, please ring T.E. Mitchell, Operations Manager, on 01-994 3838.

For an application form write to Mrs. E. K. Tyack, Marks & Spencer, Michael House, 47 Baker Street, London W1A 1DN.

Marks & Spencer

copying 1.50

CONTRACTS

ICL

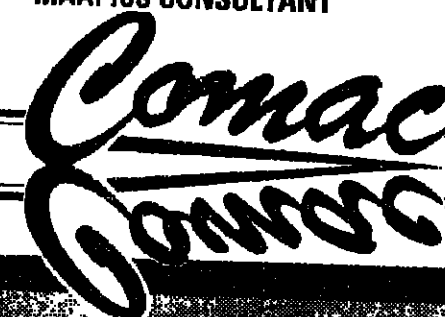
2900 VME IDMS/TP COBOL - CONSULTANTS/SENIOR ANALYSTS/PROGRAMMERS
PROJECT MANAGERS 2900/1900
DATABASE DESIGNER
DATA ANALYSIS ANALYST
IDMS/DDS VME 2900 SENIOR SYSTEMS ANALYSTS
1900 GEORGE III COBOL PROGRAMMERS
VME 2900 - SUPPORT PROGRAMMERS
SYSTEM 25 PROGRAMMERS
DRS/PASCAL PROGRAMMERS
ME29 IDMS COBOL ANALYST/PROGRAMMERS
DRS - CIS COBOL ANALYST/PROGRAMMERS
DRS - CIS COBOL PROGRAMMERS
IBM
MVS SYSTEM PROGRAMMERS (MAY)
IMS COBOL/ASSEMBLER PROGRAMMERS
OS CICS COBOL PROGRAMMERS
IMS DB/DC COBOL ANALYST/PROGRAMMERS
MVS IMS DATABASE ADMINISTRATOR
SYSTEM 38 RPGIII PROGRAMMERS - VARIOUS
ADABAS NATURAL PROGRAMMERS
DOS VSE CICS DLII VTAM SYSTEM PROGRAMMERS
8100 DPCX PROGRAMMERS AND DESIGNERS (VARIOUS)
DOS VSE ICCF CICS COBOL RPGI PROGRAMMERS
MAAPICS CONSULTANT

OTHER

PDP11 RSX11M RTL2 PROGRAMMERS
VAX VMS COBOL PROGRAMMERS
VAX FORTRAN PROGRAMMERS
VAX VMS OR RSX11M CORAL 66 PROGRAMMERS
VAX VMS SYSTEM PROGRAMMERS
TANDEM NONSTOP 2 SYSTEM PROGRAMMER
UNIVAC FORTRAN PROGRAMMERS
MOTOROLA 6805 ASSEMBLER PROGRAMMERS
MICRO (CPM) SUPPORT/CUSTOMER LIAISON
TECHNICAL AUTHORS - NUMEROUS
HP 3000 RAPID IMAGE - COBOL ANALYSTS/PROGS SCOTLAND
MILITARY/DEFENCE - VARIOUS

OVERSEAS

IDMS/VME/COBOL - ANALYST/PROGRAMMERS - KUWAIT
TPMS/VME/COBOL - ANALYST/PROGRAMMERS - KUWAIT
VME/FILETAB COBOL - ANALYST/PROGRAMMERS - KUWAIT
PRIME/FORTRAN SENIOR ANALYST/PROGRAMMERS - KUWAIT
HP 3000 IMAGE QUIZ QUICK - CONSULTANTS/PROJECT LEADERS - SAUDI ARABIA
UNIVAC 1100 DMS COBOL PROGRAMMERS - USA
RSX11M SYSTEM PROGRAMMER BRUSSELS
SEL32 MPX ASSEMBLER PROGRAMMERS BRUSSELS



Computer Appointments & Contracts Ltd

27 Town Centre, Hatfield, Herts. Telephone Hatfield (07072) 65699 or 69889. (24 hour answering service)

(3480)

DATABASE SPECIALISTS

SUPPORT FOR TOTAL SYSTEMS SOLUTIONS-TO £18K+ CO CAR

One of the major UK Software Houses/Consultancies in the HOME COUNTIES is seeking leading DATABASE SPECIALISTS for key SUPPORT roles in multi-disciplined teams providing TOTAL SYSTEMS SOLUTIONS.

Demonstrable achievements over several years and awareness of current developments in the following DATABASE fields are essential:-

DATA ANALYSIS

DISTRIBUTED DATABASE

DESIGN

PERFORMANCE

IMPLEMENTATION

ADMINISTRATION

Vacancies exist to support the following areas, in which previous experience would be desirable:-

- INTEGRATED OFFICE AUTOMATION/DATABASE INFRA-STRUCTURE ENGINEERING
- COMMAND AND CONTROL ENVIRONMENTS AND RELATED INFORMATION SYSTEMS
- KNOWLEDGE ENGINEERING
- COMMERCIAL AND FINANCIAL CONSULTANCY SUPPORT

For further information please telephone JOHN WILLS at IMPC on 01-486 5644.



Top Jobs For Top Software People
Insight Marketing & Personnel Consultants

MANCHESTER—Austin House, Charlotte Street, Manchester 1. Telephone: 061-236 7026
LONDON—72-76 Marylebone High Street, London W1M 4AJ. Telephone: 01-486 5644

Top calibre Analysts & Programmers

West London

Up to £12K+ bonus

Our client, one of the fastest growing multinationals in the FORTUNE list of the top 500 companies, is a minicomputer manufacturer with a public commitment to continuing expansion which includes the provision of top quality turnkey services. To this end an independent systems division has been set-up in the UK with European wide responsibilities to offer systems design, special purpose software, systems integration and other services to large corporations across a wide variety of commercial and technical applications.

Several more top flight analysts and programmers are required. A good working knowledge of COBOL, PL1 or Fortran is essential together with hands on experience of Transaction Processing systems or Real Time applications.

The ability to write program specifications will certainly be of interest and candidates for the more senior appointments must be able to demonstrate relevant systems design skills on commercial and/or technical applications.

These positions offer one of the most attractive

working environments in the industry including:-

- The opportunity to extend experience into completely new application areas.
- Positive encouragement to get hands on experience across the product range from micros to £1,000,000 super minis.
- A chance to acquire knowledge of new languages, operating systems and support aids.
- Outstanding opportunities for personal growth, particularly into project management.

The highly competitive remuneration package is complimented by a company car for the more senior appointments and will be earned by more junior staff, on promotion.

In the first instance contact Chris Denington on 01-631 4184 or write to: A & A Consultants (Holding) Ltd., County House, 10 Little Portland Street, London W1N 5DF.



(3130)

Programmers

£7,500-£11,000

Now is the time to make a positive
and exciting career move

BIS Software Limited is a market leader in providing advanced computer systems to international banks around the world—nearly 300 banks in 51 countries are using our system—marketed under the MIDAS trademark. We have won two consecutive Queen's Awards for Export Achievement (1981 and 1982). In the last year, we sold more of our systems than ever before and current and projected developments enable us to offer exciting career opportunities to experienced people.

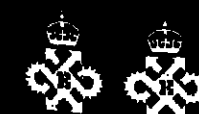
For a software company we are unique, specialising in the financial market place, with locations in key countries throughout the world (New York, Los Angeles, Miami, Toronto, London, Luxembourg, Bahrain, Singapore, Hong Kong, Tokyo with Paris and Frankfurt planned).

Career opportunities exist throughout the world, but principally now in London. Because of our growth, supervisory and managerial opportunities continually arise and appropriate development training is given.

BIS is a fast growing, dynamic company in a strong market place. Its products have excellent references and are being continually enhanced. To participate in this company and personal success story, thereby enhancing your own career and horizons, you need to have a minimum of 18 months experience in RPG II/III with preferably IBM S34/S38 knowledge.

Contact the Personnel Manager on 01-928 3551 or send a brief CV.

(3378)



BIS Software Limited
York House, 199 Westminster Bridge Road,
London SE1 7UT
Telephone 01-928 3551



PROJECT LEADER SYSTEMS ANALYST

CHEL TENHAM

Spirax Sarco Ltd. is an International Company based in Cheltenham and is market leader in the field of Energy Saving Control Equipment for steam water and compressed air services.

We will shortly be commencing an extensive programme of computer systems implementation in Sales, Financial and Manufacturing application areas. In the main, systems will be based on computer software application package solutions. The following vacancies have arisen:

PROJECT LEADER

We require a Project Leader with the ability to head up a small team of data processing specialists and user department personnel, to be engaged initially in the Sales Order Processing and Accounting areas.

Applicants should have had at least four years' data processing experience at either Project Leader or Business/Systems Analyst level, dealing with commercial type applications.

We are looking for someone aged between 30-35 with a proven track record of successful computer systems implementation.

SYSTEMS ANALYST

To work as part of the Project Team concentrating on manufacturing systems, we require a Systems Analyst with a minimum of three years' experience, preferably with some programming background.

Applicants should have experience of all phases of computer systems project development, especially in the design and implementation of commercial systems. Preferred age is 28-35.

Attractive salaries will be linked to age and experience and there are additional fringe benefits in keeping with a progressive company, including non-contributory pension scheme and BUPA membership.

Please apply in writing, giving details of career to date to:

Computer Systems Manager
Spirax Sarco Ltd.
Charlton House
Cheltenham GL53 8ER



(3410)

TREND COMMUNICATIONS LIMITED SALES ENGINEERS

for Manchester, London, Home Counties

Trend Communications are one of the leading U.K. suppliers of Data and Telegraph Test Equipment, Computer Peripherals, Commercial, Military and Data Processing Printers and the highly successful Puma Telex Terminal.

Continued expansion means that we need more Sales Engineers to join our highly skilled team.

Successful candidates will be experienced in selling products related to the Computer and Telecommunications industry and possess suitable technical and educational qualifications.

Benefits include a basic salary, company car and realistic commission scheme related to experience and success.

Applications are required in writing with comprehensive career details to:
Mr. C. Huxtable, Communications Sales Manager.

Trend Communications

Limited, 100, High Wycombe

For a full details of the company

and the position please apply to

Mr. C. Huxtable, Communications Sales Manager.

100, High Wycombe, Bucks. HP12 3JY

Telephone: 0494 400111

Telex: 849100H trend

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Telephone: 0494 400111

Telex: 849100H trend

SHAPE TECHNICAL CENTRE THE HAGUE, NETHERLANDS

A NATO technical/scientific establishment has a vacancy on its international staff for a:

SCIENTIFIC ASSISTANT

DUTIES

- Program development, coding, documenting and testing;
- Installation and testing of prototype systems;
- Programming assistance to users of laboratory software development system;
- Day-to-day running of development systems.

The work will be done under the direction of a Senior Scientific Assistant or Scientist.

- QUALIFICATIONS** - HNC or equivalent
-Working knowledge of FORTRAN IV (or other HOLL)
-Two years' relevant practical experience
-A good knowledge of English is essential

Initial annual net salary for non-Dutch married officials without children amounts to DG 48,727.

Candidates who are nationals of one of the NATO countries, should apply to the Personnel Officer, SHAPE Technical Centre, PO Box 174, 2501 CD The Hague, quoting reference CCS-B1-83, within three weeks of the appearance of this advertisement.

(3407)

TREND

Intron is one of the most successful and advanced manufacturers of materials testing equipment in the world. We have the following vacancies in our small but busy Data Processing Department.

PROJECT LEADER Up to £12.5K SENIOR PROGRAMMER Up to £11.5K

For both of these positions we are looking for at least 4 years' experience of IBM machines with COBOL. The successful candidate should ideally be educated to degree standard.

In keeping with the high standards which we maintain the Company is able to offer a competitive starting salary together with the usual benefits including non-contributory pension and life assurance scheme etc. Relocation assistance will be provided where appropriate.

For an application form please send the Personnel Department or write to the Personnel Manager enclosing a detailed C.V.

Intron Limited, Coronation Road,
High Wycombe, Bucks. HP12 3JY
Telephone: High Wycombe (0494) 3333
(men or women may apply)



(3443)

SOFTWARE ENGINEER

Micro Memory Systems Ltd, a member of the International Grundy Group of companies, located in Newbury, Berkshire, are European representatives for Diatron 5 1/4 inch Winchester disk technology and DTC Intelligence controllers. Micro Memory Systems have also developed and marketed a range of Winchester disk systems for a variety of applications.

We are now expanding our group and seek a competent Software Engineer with experience of ASSEMBLER programming on micro-processors. Experience gained on any micro-processor will be relevant, for the work will involve modification and additions to operating systems and utilities for a wide variety of 8- and 16-bit M.P.L.s.

The salary package will recognise the experience of the successful applicant and the importance of the position in Micro Memory Systems. A bonus scheme is also in operation.

Please apply to:
John Fisher, Technical Director
MICRO MEMORY SYSTEMS LTD
Kennet House, 65 London Road, Newbury, Berkshire RG13 1JN
Telephone (0638) 40405

(3434)

DEPARTMENT OF COMPUTING SERVICES

SYSTEMS PROGRAMMERS (£5352-£8325)

Two systems programmers required, one to support TOPS-20 software on a DEC-20 computer, and the other to support RSX-11M and/or RSTS/E software on PDP-11 computers.

Experience in the use of any DEC operating system is required, together with a knowledge of at least one programming language. Preference will be given to suitably experienced candidates, but graduates in subjects with a computing content will also be considered.

Further details and form of application available from the Staff Officer, Trent Polytechnic, Burton Street, Nottingham NG1 4BU. Closing date 13 May, 1983.



PENWITH DISTRICT COUNCIL

COMPUTER PROGRAMMER GRADE AP.5

An interesting and rewarding job opportunity has arisen in the Council Offices at Penzance for a Computer Programmer.

The post is initially for one year assisting in the introduction of a set of packages during which time the future development workload will be assessed. Should this workload justify it the appointment may be made permanent. Salary will be within the Scale £7,791-£8,325. The successful applicant should have at least two years' full time experience in programming and knowledge of BASIC or CMC DATA/BASIC would be an advantage.

Applications stating age, experience and the names of two referees to the Treasurer, St. Clare, Penzance, by 12 noon on Friday, 6th May, 1983.

(3408)

MODUS

Modus Management Services Limited
19 West Street, Dunstable, Beds. LU6 1SL
Telephone: Dunstable (0582) 608002
Evenings/Weekends: (0908) 670094

The CONSULTANCY CHALLENGE

Surrey/Hants Border Salaries £8,000-£18,000 + car

Since the late sixties our client has been offering consultancy, systems and software development services throughout the world and has achieved an exceedingly high reputation during this period. Over the past few years the demand for their main areas of expertise (namely, the mini and micro computer areas of defence, communications, information systems and real-time systems) has increased at an amazing rate. Accordingly, they urgently seek the very best software professionals available to sustain their prolific growth and excellent track record. Below are six of the opportunities available, but there are many more besides, ranging from Programmer to Principal Consultant levels...

Consultant - Videotex Specialist

A proven ability in Videotex technology is essential and should ideally have included project definition and proposal production for new work and close liaison with customers.

Candidates must possess technical expertise in Videotex and those with backgrounds including telecommunications, packet switching and networking will be of particular interest - especially those from a previous consultancy (or a manufacturing) environment.

Senior/Principal Consultant - Banking & Finance

Naturally, previous experience of either Banking or Financial projects is highly desirable, but the essence of the work in this group is to produce high availability/high reliability systems. Accordingly, most of the systems are implemented on TANDEM hardware. Therefore, unless their banking/finance knowledge is particularly deep, candidates really must have demonstrable TANDEM experience and an in-depth understanding of the communications related aspects of these systems.

Software Engineer - Software Technology

The Software Technology Group tends to handle most of the company's private venture research and development work. This includes compilers and operating systems (UNIX, Ada), software engineering tools & methods (MASCO) and of course 'Expert' Systems. Obviously experience of SAGE would be viewed with the greatest of interest. Candidates must have between three and eight years experience, preferably with a good knowledge of the VAX and, if possible, Ada.

Programmer - Industrial & Defence

Candidates must be fluent in Coral 68, Pascal or a similar block-structured language and should have experience of either real-time defence applications or communications (message switching, networks, voice/data comms, etc). For the young, but discerning careerist who currently feels fettered by a large bureaucratic environment, this must represent a most ideal opportunity for exciting new work and swift career advancement.

Software Engineer - Communications

Throughout the world the communications business is both booming and buoyant and encompasses everything from Satellite communications to micro-based Local Area Networks, Videotex to fibre-optics. Our client's interest in communications covers most of the spectrum, therefore any related experience will be considered very seriously indeed. Ideally, however, candidates will have had between two and six years experience gained in either a military or commercial and industrial environment and be keen to deepen their knowledge and awareness of this continually expanding area of the computer industry.

Scientific Programmer

A unique opportunity currently exists for a person to take a leading role in a challenging new project involving digital image processing. Candidates in the age range 25-28 should have a good mathematics, engineering or science degree and must have a minimum of four years experience in scientific software. Experience of digital image enhancement and/or feature detection, using FORTRAN or other high level languages on PDP-11/VAX or MC88000 is required. Enthusiasm, self motivation and communication skills are essential.

...Further Opportunities

It is difficult to list each and every opportunity available because they tend to vary as positions are 'tailored' to compromise the company's requirements against the individual's skills and talents. Suffice to say, however, that a number of alternative positions do exist, so general applications would be viewed with extreme interest and considered very seriously indeed. The essential qualifications of all candidates may be summarised as follows:-

- * Educated to degree level.
- * Have at least two years real-time systems experience.
- * Be mobile, self motivated, communicative, self assured, etc.
- * Either have the 'consultancy presence' or, at the more junior levels, actively want to work in a consultancy environment.

Without doubt a more challenging, demanding and exciting environment would be hard to find and the opportunities afforded difficult to surpass.

Contact David Walder for more details and information.

Modus Consultants are in London every Tuesday & Thursday - come and meet us

(3407)

THE ROGER PARKER ORGANISATION

ANALYSTS, PROGRAMMERS U.S. \$35,000 c. (Tax Free)

Large International Bank in the Middle East require a number of people to form the nucleus of their development team. Experience of DEC hardware plus ARBAT and AIMS is essential. Work contents include Loan Assignments, Customer and G/L Accounting, Management Information Systems, Credits and FX Money Market Settlements. Location: Bahrain

PROGRAMMERS TO SENIOR ANALYSTS £8,000 to £14,000

Major food retailing organisation are setting up a new installation and require a number of professional staff to work on commercial systems utilising the latest on-line database techniques. The environment will consist of the latest IBM hardware running under MVS. Knowledge of TSO, IMS/DB/DC is essential plus COBOL and/or ASSEMBLER. Location: Herts.

PROGRAMMING TEAM LEADER £12,000 c.

Someone with five years' IBM COBOL and including a minimum of two years' CICS, DL/I experience, is required to lead a team of programmers. The target mainframe is an IBM 4341 running under DOS/VSE. Development work covers applications under the headings of Manufacturing and Entertainment. Location: West London

P.S.: On our contracts file:

Operators with IBM DOS/VSE and MVS/JES 2/3 required for 4-6 months Anal/Progs. Software house requires COBOL Analyst/Programmers with insurance systems experience. Any mainframe, six-month contract, renewable.

INTERESTED? Then telephone CLIVE CHATTIN now, or write to him at:
(3469)

4 LONDON WALL BUILDINGS, BLOMFIELD STREET, LONDON EC2M 5NT.
01-588 8161

The EUROPEAN MOLECULAR BIOLOGY LABORATORY, a research institute situated in HEIDELBERG, Germany, invites applicants for a post as:

SCIENTIFIC PROGRAMMER

In the Computing and Applied Mathematics Programme to implement, maintain and further develop a user-oriented system for the computer analysis, storage and comparison of two-dimensional protein gel electrophoresis patterns. Other possible activities in addition to image processing might be the statistical analysis of protein and nucleotide sequence data. Applicants should have at least a bachelor's degree and good academic record and several years experience in writing well structured and documented programmes. Expertise in efficiently handling large amounts of data in such areas as image processing, pattern recognition, and interactive graphics is highly desirable.

An above-average salary will be offered to the successful candidate. Certain allowances are payable in addition, depending on personal circumstances. An initial contract of 3 years' duration, which can be renewed, will be offered.

Please write briefly for an application form quoting reference EP-83/11 to:
EMBL, Personnel Section,
Postfach 10-2209, D-6900 HEIDELBERG

(3408)

OPPORTUNITIES WEST OF LONDON

Communications Programmer
SURREY to £15K
Our client is at the forefront of remote data communications technology. A communications programmer is required to be responsible for design thru to implementation (including coding and testing) of the X25 interface to the PBS public data service. He/she will be well versed in assembler (ideally MACRO 11) and have a good understanding of communications.
This exciting role offers a high starting salary plus the opportunity to be involved in sales support activities.
Ref: KT7

Sen. An/Prog. REAL TIME
READING to £10K
A Market Leader in the design and manufacture of high quality data capture systems, seeks an additional senior analyst programmer. The successful candidate will have sound experience of real time applications, including assembler on DEC, INTEL or Z80. PASCAL would be advantageous.
He/she will have had previous supervisory experience, be capable of planning projects and scheduling manpower, and enjoy direct customer liaison.
This will involve a wide variety of non-defence projects in a pleasant in-house environment.
Ref: KT8

ICL VME Specialist
BERKSHIRE £10K-£14K
Leading international systems software company is currently developing a new range of software products for the ICL VME operating system. Candidates should have a sound knowledge of the VME system, be familiar with SFL and have experience of languages such as COBOL or PASCAL.
On return, the company offers a career position within an innovative software environment together with the opportunity to broaden your knowledge of software and hardware products.
Ref: AC3

BASIC Programmers
BERKSHIRE to £29K
A fast expanding and highly successful computer services company seeks to recruit programmers with between 1 and 8 years BASIC experience in a commercial environment.
You will be actively involved in developing commercial systems on a variety of minis and micros.
Career progression in this stimulating environment is excellent with an early opportunity to move into design/team leading role.
Ref: AC10

Sen. Programmer ME29
N. HANTS to £10K
A specialist in the storage and distribution of temperature controlled products to national food multiples is embarking on an ambitious development phase, including plans for DATA DICTIONARY, IDMS and networking at a later date.
A senior programmer is required to augment their ME29 team using RANGE COBOL. A sound knowledge of MTS or TME/TP is essential.
Benefits include good salary, pleasant environment, flexible hours, realistic career development and, of course, the opportunity to learn new skills.
Ref: KT11

Programmer DEC RT11/CTS300
WEST LONDON to £8,500
Our client, a multinational management services organization, with a turnover of \$300,000,000 develops advanced systems for particular market sectors using a mixture of hardware (DEC, IBM) software and telecommunications facilities.
An opportunity has arisen with their Travel and Leisure division for a Programmer to work as part of a team on the development of Hotel Reservation Systems.
Programming experience under the RT11 or CTS300 operating system is essential.
The position offers the opportunity to broaden experience and progress into either a client contact role or a more senior software development position.
Ref: KM18

MCL
McCOURT COUSINS LTD, 27-29 Greyhound Road, Reading, Berkshire.
Tel: Reading (0734) 595346 (24 hours)

MVS JES2 OPERATORS
BIRMINGHAM
18 months' MVS JES2 experience is required to join this expanding installation and a knowledge of JCL would be a plus. Excellent prospects for the right applicants.
Ref: AM777/CW

NETWORK SUPPORT
C. LONDON
Minimum one year's experience on a remote network is required to join this installation. Knowledge of DOS CICS VM-CMS, BSC Protocol and modern equipment is essential, together with a sound data communications background. Good prospects.
Contact Anne-Marie on 01-836 8411 regarding the above positions.
Ref: AM722/CW

OPERATIONS CONTROLLER
W. LONDON
A dedicated and hardworking supervisor is sought by our client to take total responsibility for the imminent installation of their IBM 4331. The successful applicant will be recruited for his/her thorough DOS/VSE VTAM expertise and ability to train and motivate a department of five. You must possess over two years' proven supervisory skills, be capable of undertaking systems generation and organising the computer room to a high standard.
Ref: KS988/CW

DOS/VSE OPERATOR
LONDON
This prestigious 4341 site is keen to recruit a highly skilled DOS/VSE operator with approximately 18 months' experience. You will be joining an installation where there is movement into technical support or systems programming. Two shift operations.
Contact Kay on 01-836 8411 regarding the above positions.
Ref: KS982/CW

OPERATOR SUFFOLK
Our client requires a young enthusiastic operator, training on an IBM System 34 will be given to the successful applicant if necessary. Days only.
Ref: LR988/CW

NETWORK CONTROLLER S.E. LONDON
Young network controller to work in this rapidly expanding TOC centre. International network, lots of user liaison. Extended day shift.
Ref: LR878/CW
Contact Lynne on 01-836 8411 regarding the above positions.

CONTRACTS
Burroughs 4700 Operator - urgent
D.G. AGS Operators - urgent
OS/VS1/VM OPERATORS and SHIFT LEADERS - SAUDI ARABIA
Contact Stephen on 01-836 8411 regarding the above positions.

Go Operators
V11 House, St Martin's Lane, London WC2N 01-836-8411

COMPUTER SCOTLAND '83
MAY 18 ISSUE

Recruitment report to coincide with MAY 18 SCOTLAND '83
Kelvin Hall, Glasgow, May 17-19, 1983.

To reserve space in the May 18 Scotland Recruitment Report
Phone: (01) 661 8000
Copy deadline is Monday, May 9

Classified Department
Quadrant House
The Quadrant
Bristol, Surrey GU2 5AS

Computer Weekly

Field Service Engineers.

Rewarding opportunities in the Middle East.

£20,000 plus car + comprehensive benefits.
Single or married status.

"Progress within the Middle East is linked with the ability to benefit from and control advances in technology. However, technological development generally outpaces society's ability to use it practically, this being especially true within the computer and communications environment."

We are a major Saudi - North American joint venture communications company totally committed to the office automation world within the Middle East. Based on many years of experience in the planning, design, engineering, installation, customer training and maintenance, we offer a total systems integration service coupled with a computer service bureau for 'electronic correspondence' based on our in-house Tandem processors.



Already employing over 140 personnel within our headquarters in Al-Khobar we are seeking to expand this headcount considerably, with a view to opening new offices throughout Saudi and other Gulf states. To this end we are currently seeking to recruit two experienced Field Service/ Customer Engineers with the following attributes:

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Our client is a small systems house with a phenomenal growth rate - it will achieve over £1M of turnover in its first year of operation, with profits to match - and future business in the pipeline to maintain this momentum. The directors to whom the successful candidates will report are very experienced computer technicians with skills covering both hardware and software who can demonstrate entrepreneurial abilities of a high order.

These appointments offer quite exceptional opportunities, not only to work in a very stimulating environment but also to influence in a meaningful way the future development of the company.

Candidates must have a successful track record in completing multiple projects (utilising up to 10 analysts/programmers) on time and to budget which, preferably should include experience involving contract personnel.

Substantial familiarity with TP software is very

important, including DME, TME or CICS or ZILOG systems. COBOL is the most heavily utilised language.

Preference will be given to people with well developed interpersonal skills because it will be necessary to represent the company at all levels of client management. Knowledge of the Local Authority or Health Care market would be advantageous in the short term but there is potential to make use of a wide range of application experience.

Remuneration is negotiable but unlikely to be a limiting factor and the intention is to recognise and reward good performance with an above average package. Working conditions are good and plans are already in hand to move to larger premises as the need arises.

*To find out about the difference call Bruce Crammond on 01-631 4184 or send a detailed C.V. to:
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A&A

THE Middle East! Sun, sand and camels, the ancient lands of the spice trade. These are the traditional images, but recently the picture has changed.

Sun and sand are now joined by oil and monetary wealth. The greatest inducement for many the only one for leaving these green pastures for the pink deserts is personal enrichment. Money! We all seem to need more of it but for every reward there is a task to be done and care is needed in its choice.

There is advice for those who wish to earn the high rewards the Middle East has to offer and there are warnings for those with a Macabre outlook on the world. There is also a flavour of another lifestyle, both exuberant and exotic, with its own multi-national culture, that of the expatriate modern-day nomad.

The people are polite and generally courteous, though they lack one technological background, which is often mistakenly taken for stupidity and backwardness.

Fortunately a knowledge of Arabic is not necessary since most Arabs speak English.

The law is strict and penalties for more serious crimes often public. The most common offence among expatriates in Saudi Arabia resulting in a jail sentence is the selling of alcohol (not its consumption). For a sense of proportion, bear in mind that the sentences are less than those imposed in the US in the days of prohibition.

Generally, there are classes of people for punishment purposes with less severe penalties going to the Westerner and the most severe to the Moslems.

Sand, sun, camels and money await you in the Middle East

But is it worth it? Declan Smith points out the pros and cons of Arabian life

It is imperative that you have personal transport. Car prices vary from one country to the next. In Dubai the prices are similar to the UK whereas in Saudi Arabia they are half that price. Your professional status is assured in the private sector and in Saudi Arabia this is particularly important.

Certain categories of expatriates are not allowed to take their families and diversions are underway to forbid these categories from owning or driving private transport.

The working week is generally between 40 and 48 hours, six days a week with Fridays off. Contracts can be accompanied (with your family, but lower salaries) or unaccompanied (usually shorter periods). Leave is variable but guidelines are as follows.

Unaccompanied personnel between 12 and 16 weeks in country get 1.25 days off for every week worked. Accompanied

lower with yearly increments and accompanied status to follow. These can ultimately be very worthwhile. A rule of thumb worth remembering is that after a one year contract it can take three months to get your next one, so reduce your salary accordingly!

A common mistake is to assume you will meet a financial target in a certain time. Add an extra year for every three. Inflation becomes noticeable after the first years but more insidious is the growth in your expectations.

More expensive clothes and holidays becomes a part of your lifestyle. Your social



A familiar Arabic sight. But would you tire of camels, sand and sun?

contracts generally offer one month in every six. Salaries are between £14K and £24K dependent on location and conditions, with both extremes available for the same job. A good average for hardware or software personnel would be £19K, accompanied.

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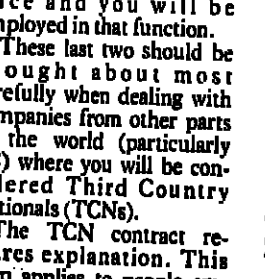
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outgoings will become greater and your desire for the "bigger and better" will certainly grow. Since your happiness and job satisfaction depend on the contract then let us look at the major types. The first is a contract with a UK based company. A contract of this type must be the safest of all. Most do not offer further employment on your return to the UK but you are in a strong position and they will try to retain you if possible.

The longer term prospects are good, promotion quite often going to those on-site, plus yearly increments in salary more than off-setting the lower starting figures.

Conditions depend on the size of the company but they all understand the UK norm both in creature comforts and the personnel department.

Importantly, if you have contracted to fulfil a particular function both sides understand the terms of reference and you will be employed in that function.

These last two should be thought about most carefully when dealing with companies from other parts of the world (particularly US) where you will be considered Third Country Nationals (TCNs).

The TCN contract requires explanation. This term applies to people employed by an Arab national

organisation which itself is in partnership with an expatriate company. Therefore the first nation is the Arab, the second is its partner and the third are all contract staff.

This is the worst possible situation to be in although the most profitable for certain categories, ie electronics engineers and microprocessor oriented software personnel. You are employed by an Arab concern (notably the oil ministries) but work almost exclusively for the partner which provides its own permanent staff to control the operation and also supply most of the equipment.

You will be considered as part of a labour pool and not as a professional part of the organisation. Perhaps the greatest problem exists when action benefiting the partner (seller) is taken at the expense of your employer (customer). It is then that a blind eye can be an intolerable strain. Personnel are sub-divided as to nationality, with differing conditions applying to each (according to the home country's company standards). Americans classify the British and the Third World as the same (except for pay) whereas European companies treat all Westerners equally, with a separate deal for the Third World. This type of contract is definitely only for the rhinoceros skinned who need a

quick injection of money.

The final type of employer is in the private sector. This mainly consists of agencies for the major computer and peripheral manufacturers. This is arguably the best of all worlds. Here you have the greatest personal freedom and the greatest responsibility.

Accommodation ranges from villas (with the major banks) to flats found by yourself. Most computer companies now have agents in the Arabian peninsula. Salaries are negotiable and are always in package terms. Employees are often expected to act as the local expert on all software/hardware the agency sells, plus be a part-time salesman.

Your experience will broaden considerably with good prospects for promotion. Your fortunes are tied to those of the agency so consider the product line carefully. This is a boom area since protectionism forces companies to buy through local agents.

Social mobility is greatest here and a truly cosmopolitan lifestyle is enjoyed. The organisations are smaller and friendlier but do not expect the squash courts and facilities of the larger companies normally found in the previous categories.

These contracts are mainly accompanied and often for two years. If you like self-determination and are self-sufficient this is the one

for you.

The social security laws are often very good though written copies are difficult to obtain. For example in Saudi Arabia, where women are discouraged from working, the law insists on maternity leave and nursing facilities to be provided by the employer. It is well worth your while obtaining a copy and reading them carefully.

Often companies will attempt to deny you these rights by disclaimer in your contract. These can be ignored since all contracts are bound by local laws. These laws are a two-edged axe, no unions are allowed nor any strikes. Collective complaints can be construed as industrial espionage with imprisonment until trial.

You find out about these jobs from agencies advertising in your favourite papers and often they really do have positions that are never directly advertised.

The bigger companies advertise directly. Unfortunately most agencies have no personal experience of the area and rely heavily on what they have been told by the employer. This can be highly coloured! Company facilities are often non-existent or public not private. Delays of up to three months from the first approach are to be expected.

Before you leave home check: The contract is in both languages and you are sure of the translation. The tax position. There are plenty of leaflets available and several banks have experts only too pleased to help. Any points not clarified by your future employer should be assigned to the "worst case". Verbal promises of the "we are just changing xyz" kind should be ignored.

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MIDDLE EAST JOBS

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- 1) SHIFT TECHNOLOGIST
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Benefits include a high tax-free remuneration, good career prospects, free medical care in the UAE, free furnished family accommodation, paid home leave for the family and educational assistance. Candidates are invited to apply in English, giving full details of education, training and experience, supported by copies of relevant certificates separately to both the following addresses, not later than three weeks from the date of publication:

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2. Department of Petroleum
P.O. Box 9
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5 years' scientific EDP experience including optimization, modelling simulation, etc. using APL, GPSS, PL/1, FORTRAN and IBM OS/TSO or VM/VMS.

SYSTEMS
PROGRAMMERS

Minimum of 4 years experience supporting MVS/JAS 11, T.P. system, IMS/VS or CICS.

DATABASE
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ANALYSTS

5 years' experience in designing BMP or On-line systems in a large IBM/OS or MVS environment. BTS, IMS access methods and ADF would be an advantage.

THE INSTALLATION

IBM 3081 - MVS JES II
IBM 4341 - DOS/VS
Software: TSO/SPF, VSAM, CICS IMS DB/DC, DL1
Languages: PL1/COBOL/MARK IV Technical PL II
FORTRAN

Age and marital status is immaterial, but a minimum of four years' relevant DP experience is essential.

Please contact Joanne Littler M.E.C.I. or Derek Crumack for further details on 081-941 4319 or evenings 081-445 3022.

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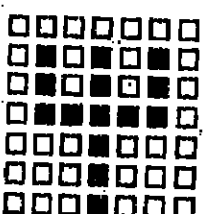
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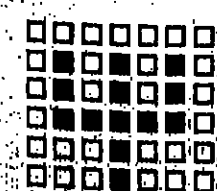
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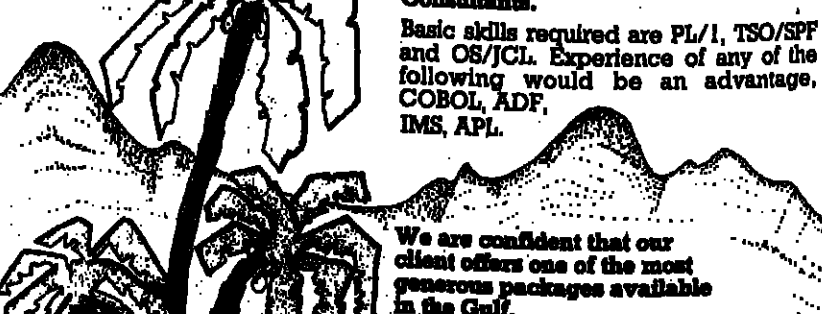


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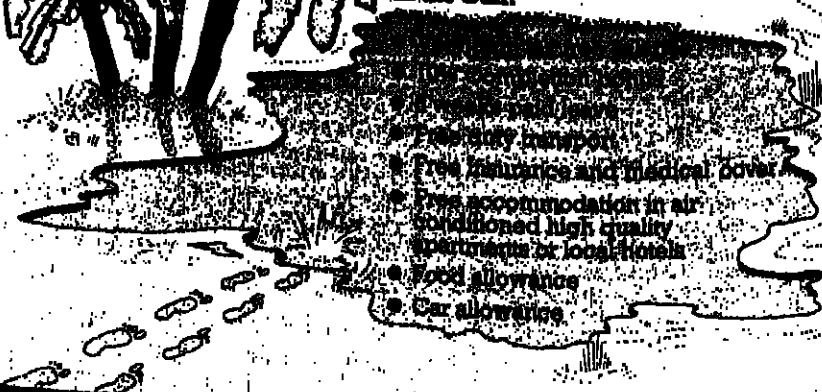
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SENIOR ANALYST/ PROGRAMMER DOS/ICCF/CICS EXPERIENCE

BAHRAIN £20,000 p.a. (Tax Free)

The General Organisation for Social Insurance has recently taken delivery of an IBM 4331 computer running under SSX/VS.

A Senior Analyst/Programmer is required to lead a small team (4/6) Analysts/Programmers in the development of on-line applications using CICS with VSAM files. The Organisation has, during the last two years, developed a large database of information concerning insured workers on the island. This data is currently being maintained by batch application systems; the delivery of the IBM system will permit on-line access to the database in the first instance. It is planned to move to a database organisation together with on-line data entry, in parallel with the development of further application systems during the coming year.

The successful candidate should be educated to degree level and have an in-depth knowledge of CICS preferably gained in a DOS environment.

Reporting to the Computer Manager the Senior Analyst/Programmer would be expected to both supervise and train an experienced team of Analysts/Programmers in the effective use of CICS software.

An initial 1 year renewable contract would include free accommodation and five weeks' annual holiday together with a contract completion payment.

Applicants should write to the Computer Manager by 6th May in the first instance enclosing details of age, marital status, education, etc together with a brief history of career to date.

General Organisation for Social Insurance
P.O. Box 5319
Bahrain

Analyst/ Programmer

Jeddah
c.£21,500 tax free

One of Saudi Arabia's most successful international groups requires an Analyst/Programmer for a recently formed and expanding company based in Jeddah.

Reporting to the DP Manager, initially you will have a deep involvement in the conversion of an IBM 34 to a System 38 configuration. This will be followed by normal analyst/programming duties including the maintenance, tailoring and development of standard packages.

Aged 28-35, you will have been in programming at least 4 years, including a minimum of 1 year in both analysis and project management. Knowledge of RPG2 is essential and experience of RPG 3/DMAS/DM5/MAPICS would be an advantage.

This is an open-ended career appointment which offers either married or single status conditions and above average benefits.

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Please reply initially to: Pat Cooper or Isobel Hart,
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For further details about these vacancies please contact
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(2381)

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These posts require experience of pre-sales activity
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(3469)

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For the programming requirements, language experience should include Assembler and use of high-level languages such as PASCAL, C, CORAL 66 and COBOL.

Client interviews will be conducted in LONDON during week commencing May 8

For further information please contact Jenny Dalrymple-Hay or Ian Murray-West quoting Reference Number 9972. Telephone 01-493 2947 (9 am-9 pm) or weekends respectively Beaconsfield (04946) 4579, Milton Keynes (0908) 563415.

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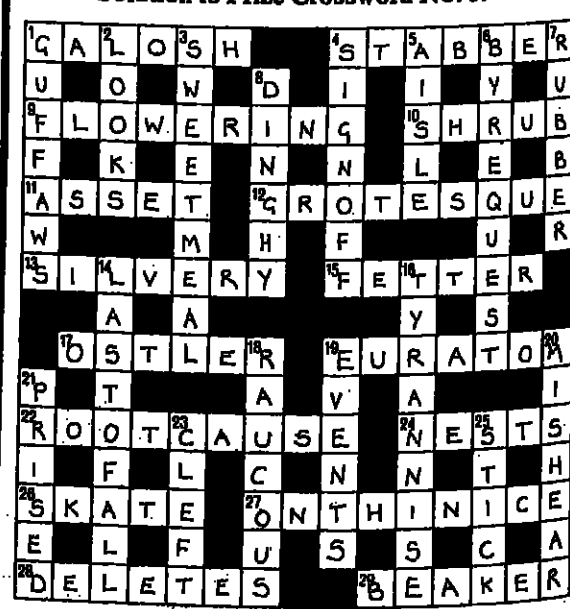
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CROSSWORD

Solution to Prize Crossword No. 39



THIS month's first prize goes to Joyce Beattie and Richard Balfour, whose joint entry wins £10. Both work at Halliburton in Arbroath. Mrs Beattie as a data control clerk and Mr Balfour as a computer operator. Prizes of £5 each go to Brian Howlett, a research fellow in child health at the University of Bristol and to Beryl Mackay, a partner in Sheffield-based SPSC Data Entry Services.

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Applications are forwarded to the client concerned, therefore companies in which you are not interested should be listed in a covering letter.

(2464)

Royal County of BERKSHIRE

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ES362-EB325

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Application forms from the County Surveyor, Shire Hall, Shirefield Park, Reading RG2 9XG. Tel: Reading 876444 Ext. 4621.

Closing date: 5 May.

Berkshire County Council is an equal opportunity employer and all applicants will be considered solely on the basis of suitability for the post irrespective of race, colour, sex, marital status or disability.

(3457)

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In the first instance please contact Maureen Parker on: Waltham Cross 33208.

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(3473)

beechwood
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PLYMOUTH HEALTH AUTHORITY

Computer Manager

Scale 9, £8,367-£10,277 (plus proficiency allowance)

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The requirement is for a Manager to oversee the developments, to undertake programming for mini and microcomputers and to maintain a prompt and efficient output.

It is envisaged that grading will be increased commensurate with introduction of the new machinery.

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Application and job descriptions can be obtained from Mr A. Wilson, District Treasurer, Plymouth Health Authority, 7 Nelson Gardens, Stoke, Plymouth, (Telephone Plymouth 52852 Ext 267.)

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Department of Computer Science

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In the above named department, the post holder to develop the MUSE portable compilation system as presented the high level and languages concerned are Pascal, Fortran, Basic, Cobol, and C, running on VAX, PDP11, and micro-based computer systems. Candidates should have a good degree and relevant systems programming experience in research or industry. The post is suitable for an initial period of three years. Salary range £5,575-£11,195 p.a. (dependent on qualifications).

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Application forms and further details are available from: The Administrative and Personnel Officer, The Labour Party, 195 Leamington Road, London SE17 1LT. Tel: 01-763 0833.

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(3298)

April 1983